H-495

HITACHI

MODEL V-069
VECTOR SCOPE

SERVICE MANUAL

Hitachi Denshi, Ltd.

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NOTE

- This instrument should be adjusted at an ambient temperature of +20°C for best overall accuracy.
  Allow at least 15 minutes warmup before proceeding.

NOTICE

This Service Manual describes the most typical product of this model. If there are any specific differences between this Manual and the servicing unit, please contact Hitachi Denshi sales office in your area.

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1. SPECIFICATIONS

- o CRT: 150CNB31T-VN Type
  (6-inch rectangular CRT with internal graticule)
  - Accelerating voltage: Approx. 10 kV
  - Scale illumination: Variable
- o CHROMINANCE
  - Frequency response: Subcarrier frequency
    Fsc = 3.579545 MHz
    Upper -3 dB point
    = Fsc + 500 kHz ± 100 kHz
    Lower -3 dB point
    = Fsc - 500 kHz ± 100 kHz
  - Vector phase accuracy: Within 1°
- o SUBCARRIER REPRODUCTION
  - Pull-in range: Within Fsc ±50 Hz
  - Pull-in time: Within one second
  - Phase error due to variation in Fsc: Within 0.5° for ±50 Hz variation in Fsc
  - Phase shift with burst amplitude variation: Within 2° for ±6 dB
  - Phase shift with input channel switching: Within 0.5°
  - Gain control variation phase error: Within 1° for 1x to 2x
    Within 1° for 1x to 0.5x
  - Burst jitter: Within 0.5°
  - Phase control range: 360° or greater
  - Input amplitude range: 1 V ±6 dB
  - Maximum input voltage: ±20 V (DC)
  - Variable gain range: 0.5x to 5.0x
  - Gain stability: Within 1 % with temperature variation from 0 to 50°C
    Within 1 % with power supply voltage variation

Clamp stability:	Within 1/8 inches for a central spot
	Within 1/64 inches with phase control
Waveform distortion	
Input separation:	46 dB or more between channels
Input return loss:	46 dB or more up to 5 MHz
Differential phase:	Within 1 °
Input impedance:	15 kΩ, Within 50 pF
Input coupling:	AC
Position range:	±1/4 inches or more from vertical and horizontal

- EXTERNAL SYNC

Required amplitude:	2 Vp-p ±6 dB (SC)
	1 Vp-p ±6 dB (VBS)
Input impedance:	15 kΩ, Within 5 pF
Return loss:	46dB or more (50Hz to 5MHz)
Maximum input voltage:	±20 V (DC)

- POWER REQUIREMENTS

Line voltage:	100/120/220/240 V AC ±10 %, 50/60 Hz
	100/120/220/240 V AC ±5 %, 400 Hz
Power consumption:	28 W approx. (100 V AC)

- AMBIENT TEMPERATURE

Operating temperature:	0 to 50 °C (32 to 122 °F)
Temperature range for guaranteed specifications:	10 to 30 °C (50 to 86 °F)
Storage temperature:	-40 to +70 °C (-40 to +158 °F)

- DIMENSIONS: 216(W) x 133(H) x 420(D) mm (8.6 x 5.3 x 18.6 in)
- WEIGHT: 6 kg (13.2 lb) approx.
- OPTIONS: 19-inch rack mount 7108
  Blank panel 7203
  Cabient 7109

2. ACCESSORIES

The V-069 Vectorscope is shipped with the following standard accessories:

1	V-069 vectorscope
1	AC power cord
1	Fuse (250 V, 0.8 A)
1	Operation manual

3. PREVENTIVE MAINTENANCE

Preventive maintenance, when performed on a regular basis, can prevent instrument breakdown and may improve the reliability of the vectorscope. The severity of environment to which this instrument is subjected will determine the frequency of maintenance. A convenient time to perform preventive maintenance is preciding recalibration of the instrument.

Disassembly

Remove the cover of the instrument.

Most of the internal parts of the instrument are now accessible.

If access to the front of the circuit boards are necessary, remove the knobs from the external control shifts on the board.

Cleaning

The instrument should be cleaned as often as operating conditions require. Accumulation of dirt in the instrument can cause component breakdown.

The covers provide protection against dust in the interior of the instrument. Loose dust accumulated on these covers can be removed with a soft cloth or small brush.

Dirt that remains can be removed with a soft cloth dampened in a mild detergent and water solution. Abrasive cleaners should not be used.

Cleaning the interior should only be occasionally necessary. The best way to clean the interior is to blow off the dust with a dray, low-velocity stream of air. A soft-bristle brush or a cotton-tipped applicator is useful for cleaning in narrow spaces or for cleaning more delicate components.

Visual Inspection

The instrument should be inspected occasionally for such defects as broken connections, improperly seated transistors, damaged circuit boards, and heat-damaged parts. The corrective procedure for most visible defects is apparent; however, particular care must be taken if heat-damaged components are found. Overheating usually indicates other trouble in the instrument; therefore, correcting the cause of the overheating is important to prevent recurrance of the damage.

4. CALIBRATION

4.1 Test equipment required

No.	Name	Minimum Specification	Purpose	Equipment used
1	Digital voltmeter	0.1%	Low voltage Power supply	
2	High-voltage probe	1000 x, 3%	High voltage Power supply	
3	Sine-wave generator	Frequency range; 50kHz to 5MHz	Phase shift	
4	Video signal generator Color bar output	Conforming to NTSC standard	Compensation Burst gate Gain	
5	Oscilloscope (With 10x probe)	50MHz, 5mV/div Capable of tracing difference between CH1 and CH2	Frequency response adjustment, etc.	V-650F (Hitachi) V-1050F (Hitachi)
6	Return loss bridge		Return loss	015-0149-00 (Tektronix)
7	Return loss bridge		Return loss	011-0103-01 (Tektronix)
8	Sine-wave generator (SG)	Frequency range; 25Hz to 10MHz	Return loss	
9	Impedance converter (50Ω to 75Ω)		Return loss	011-0057-00 (Tektronix)
10	75Ω end-line terminator		General use	011-0103-02 (Tektronix)
11	75Ω coaxial cable		General use	
12	50Ω coaxial cable		Return loss	
13	Attenuator		Sync check	

4.2 Initial setting

1 Turn the POWER/SCALE ILLUM control fully counterclockwise.

2 Check that AC voltage is within ±10 % of the rated value.

3 Connect the V-069 to AC source.

4 Turn the POWER/SCALE ILLUM control fully clockwise (power switch ON).

5 Allow the V-069 to warm for 15 minutes.

Adjust the controls on the front panel as shown below.

POSITION ; Mid-position

POSITION ; Mid-position

GAIN ; CAL

INPUT ; As desired

Ø REF: As desired

SATURATION: 75 %

TEST CIRCLE: OFF

INTENSITY: Proper intensity

4.3 Power supply system

NOTE

Numbers in circles show the order of adjustments and correspond to Adjustment Locations in the pullout pages.

① Check of low-voltage source

Power supplies	Rating	Check point
* +5 V power supply	; +5 V ±0.25 V	Pin 3 of P1105
* +8 V power supply	; +8 V ±0.5 V	Pin 2 of P1105
* -8 V power supply	; -8 V ±0.5 V	Pin 5 of P1105
* +90 V power supply	; +90 V ±4.5 V	Pin 1 of P1105

② Check of K voltage

Connect the digital voltmeter to pin 1 of P1102 using the x1000 high voltage probe and check that the voltage is -1500 V approx.

③ Adjustment of grid bias

a. Set the INPUT switch to A to display the spot on the CRT.

b. Set the INTENSITY control as shown in Fig. 2.

Fig. 2

c. Adjust RV1002 at the position where the spot starts to appear.

d. Check that the spot disappears completely when the INTENSITY control is set to a minimum. Further check that the spot provides brightness enough to cause halation when the control is set to a maximum.

④ Adjustment of focus and astigmatism

a. Set the INPUT switch to A to display the trace on the CRT.

b. Set RV1003 to the mid-position.

c. Adjust the FOCUS control and RV1002 alternately to obtain the sharpest trace.

d. Check that the optimum focus is ensured when the INTENSITY control is turned.

⑤ Adjustment of position

a. Set the INPUT switch to A to display the spot on the CRT.

b. Set the V. POSITION and H. POSITION controls to their respective mid-positions.

c. Adjust RV303 and RV803 to center the display on the CRT.

d. Adjust the V. POSITION control and verify that the spot moves up and down more than 7 mm.

e. Adjust the H. POSITION control and verify that the spot moves back and forth more than 7 mm.

4.4 Signal system

⑥ Setting of CV1

a. Connect the sinewave generator output to one of the A INPUT connectors of the vectorscope with the 75-ohm coaxial cable, and terminate the other in 75 ohms.

b. Set the INPUT switch to A.

c. Set the frequency of the sinewave generator output to 3.58 MHz.

d. Observe the waveform on the check terminal VA by the oscilloscope.

e. Adjust CV1 so that the amplitude is halfway between the maximum and minimum amplitudes.

⑦ Adjustment of burst gate pulse

a. Supply the color bar signal from the TV signal generator to one of the A INPUT connectors, and terminate the other in 75 ohms.

b. Set the INPUT and Ø REF switches to A.

c. Observe the waveforms on the check terminals BURST GATE and Ø, at CH1 and CH2 of the oscilloscope, respectively. (Synchronize at CH1.)

d. Adjust RV207 so that the leading edge of the burst gate pulse becomes as illustrated in Fig. 3.

e. Adjust RV208 so that the burst gate pulse width becomes approx. 3.8 μs as illustrated in Fig. 3.

f. Verify that the phase variation is less than 2° when the burst amplitude of the TV signal generator is in the x1/2 or x2 mode.

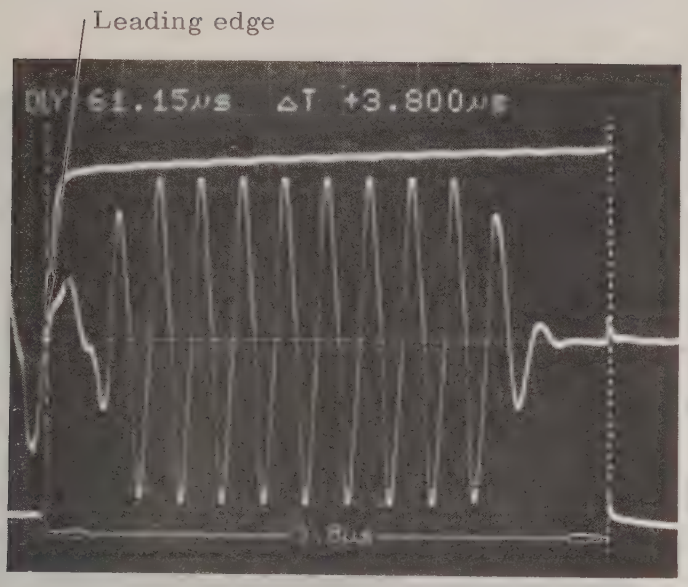


Fig. 3

⑧ Adjustment of jitter, lock and free-run

a. Supply the color bar signal from the TV signal generator to one of the A INPUT connectors on the rear of the vectorscope, and terminate the other in 75 ohms.

b. Set the INPUT switch and the Ø REF switch to A.

c. Adjust CV205 so that the waveform stops on the vectorscope.

d. Check the DC voltage on the check terminal VC by the digital voltmeter.

e. Adjust the voltage for +3.2 to +3.3 V by CV205.

f. Observe the waveform on the check terminal VC by the oscilloscope.

g. Adjust the portion (A) as illustrated in Fig. 4 by RV209.

h. Check that the free-run mode is established on the vectorscope when the Ø REF switch is set to B and EXT SC. If the free-run mode is not obtained, adjust RV209. Check that the lock mode is established when the Ø REF switch is set to A.

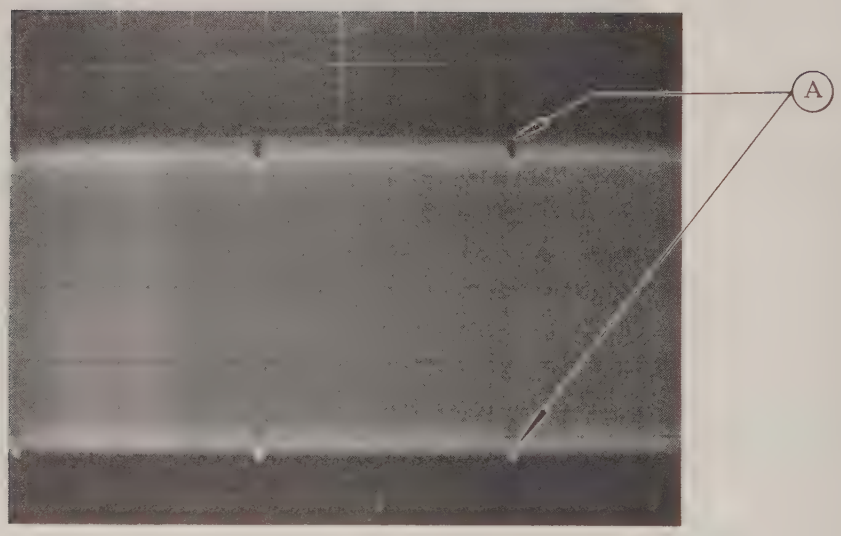


Fig. 4

⑨ Adjustment of VAR GAIN

a. Connect the color bar signal from the TV signal generator to one of the A INPUT connectors and terminate the other in 75 ohms.

b. Set the INPUT switch and the Ø REF switch to A.

c. Observe the waveform on the check terminal CHROMA by the oscilloscope.

d. Set the VAR GAIN control of the vectorscope to a maximum.

e. Adjust the VAR GAIN control of the oscilloscope so that the display becomes 5.2 div on the CRT.

f. Set the VAR GAIN control of the vectorscope to a minimum.

g. Adjust RV204 so that the display becomes 0.5 div on the CRT.

h. Set the VAR GAIN control of the vectorscope to CAL and adjust RV202 so that the display becomes 1 div on the CRT.

⑩ Adjustment of VAR GAIN phase

a. Connect the color bar signal from the TV signal generator to one of the A INPUT connectors on the rear of the vectorscope and terminate the other in 75 ohms.

b. Set the INPUT switch and the Ø REG switch to A.

c. Set the VAR GAIN control to CAL and adjust the burst phase to 0° by the phase control on the front of the vectorscope.

d. Adjust the VAR GAIN control so that the same burst amplitude as in the CAL state is obtained.

e. Adjust RV204 so that the burst phase becomes 0°.

f. Adjust the VAR GAIN control so that the burst amplitude matches the circle graticule on the CRT.

g. Adjust RV203 so that the burst phase becomes 0°.

h. Adjust the VAR GAIN control and verify that the phase error is as follows.

x1 to x2 : Less than 1°
x1 to x1/2 : Less than 1°

⑪ Adjustment of vector amplitude and true circle.

a. Connect the color bar signal from the TV signal generator to one of the A INPUT connectors and terminate the other in 75 ohms.

b. Set the INPUT switch and the Ø REF switch to A.

c. Adjust the burst phase for 0° by the phase control.

d. Adjust RV301 (horizontal direction) and RV801 (vertical direction) so that each vector is at the center of the spot on the graticule.

e. Set the TEST CIRCLE switch to ON.

f. Adjust the VAR GAIN control so that each vector is on the circle graticule.

g. Adjust CV204 to obtain a true circle.
If necessary, adjust RV301 and RV801.

h. Set the VAR GAIN control to CAL and the TEST CIRCLE switch to OFF, and set the burst phase to 0°.

i. Verify that the vector amplitude accuracy is less than 1 % (1.4 IRE). (Fig. 5)

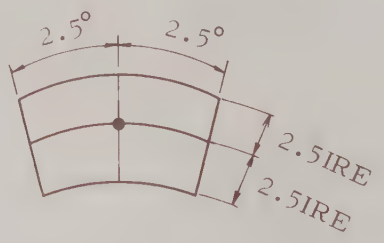


Fig. 5

(12) Vector phase accuracy

a. Connect the color bar signal from the TV signal generator to one of the A INPUT connectors on the rear of the vectorscope and terminate the other in 75 ohms.

b. Set the INPUT switch and the Ø REF switch to A.

c. Adjust the PHASE control so that the burst phase becomes 0°.

d. Verify that each vector is less than 1 degree from the center of the spot. (See Fig. 5.)

(13) Adjustment of A SC amplitude

a. Connect the subcarrier from the TV signal generator to one of the A INPUT connectors on the rear of the vectorscope and terminate the other in 75 ohms.

b. Set the INPUT switch to A SC and the Ø REF switch to A.

c. Set the TEST CIRCLE switch to ON.

d. Adjust CV201 so that the amplitude coincides with the circle graticule.

(14) Input amplitude range

a. Connect the color bar signal from the TV signal generator to one of the A INPUT connectors and terminate the other in 75 ohms.

b. Set the INPUT switch and the Ø REF switch to A.

c. Adjust the burst phase for 0° by the PHASE control.

d. Change the sync level, the chrominance level and the burst level of the TV.

signal generator from x1/2 to x2 of the normal value and check the synchronization.

⑮ Adjustment of 100 % SATURATION

a. Connect the color bar signal from the TV signal generator to one of the A INPUT connectors on the rear of the vectorscope and terminate the other in 75 ohms.

b. Set the INPUT switch and the Ø REF switch to A.

c. Adjust the PHASE control so that the burst phase becomes 0°.

d. Set the SATURATION switch to 100 %.

e. Adjust RV201 so that the vector level is at the 100 % position on the CRT graticule.

f. Check that the phase remains unchanged when the SATURATION switch is set to 75 %.

⑯ EXT SC amplitude range

a. Connect the equipment as illustrated in Fig. 6.

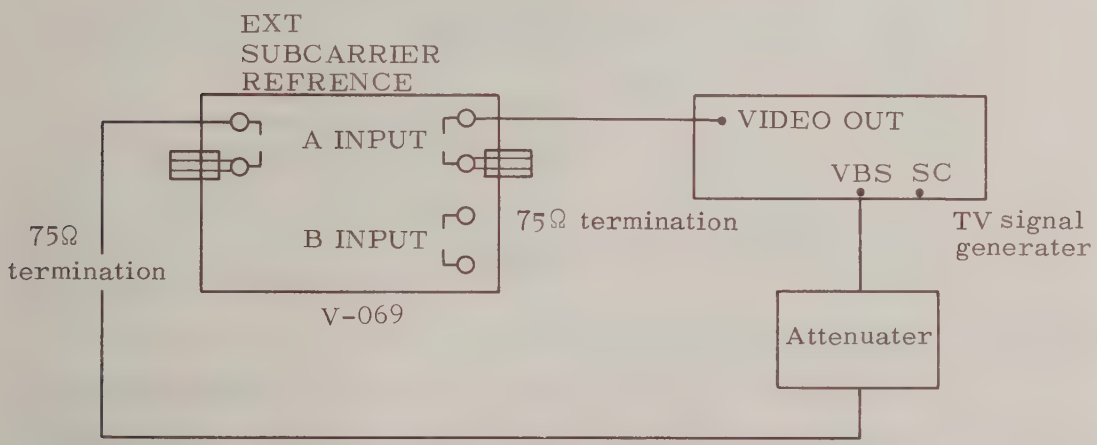


Fig. 6

b. Set the INPUT switch to A and the Ø REF switch to EXT SC.

c. Change the VBS signal by ±6 dB by the attenuator and check the synchronization.

d. Change the VBS signal to the SC signal and check the synchronization similarly.

⑰ Input channel selection

a. Connect the equipment as illustrated in Fig. 7.

b. Select the color bar signal as the output of the TV Signal Generator.

c. Set the INPUT switch and the Ø REF switch to A.

d. Adjust the VAR GAIN control so that the burst amplitude coincides with the circle graticule.

e. Adjust the PHASE control so that the burst phase is 0°.

f. Disconnect the coaxial cable and the 75-ohm terminator from the A INPUT connectors, and connect them to the B INPUT connectors.

g. Set the INPUT switch and the Ø REF switch to B.

h. Adjust CV101 so that the burst amplitude coincides with the circle graticule.

i. Verify that the phase error is less than 0.5°.

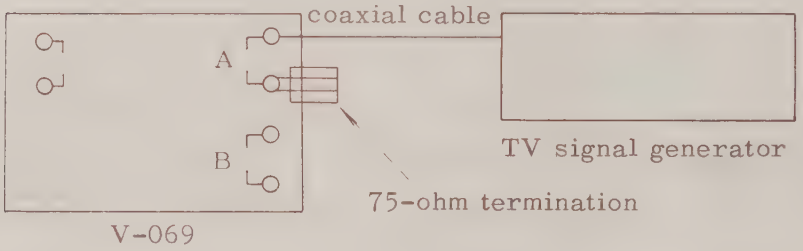


Fig. 7

⑱ Check of chrominance band

a. Connect the sinewave generator output to one of the A INPUT connectors of the vectorscope with the 75-ohm coaxial cable, and terminate the other in 75 ohms.

b. Set the frequency of the sinewave generator output to 3.579545 MHz.

c. Adjust the voltage level of the sinewave generator so that the waveform (circle) coincides with the circle graticule.

d. Raise the frequency of the sinewave generator output until the amplitude shown in Fig. 8 is obtained.

e. Check that the frequency is 4.08 MHz ±100 kHz.

f. Lower the frequency until the amplitude shown in Fig. 8 is obtained.

g. Check that the frequency is within 3.08 MHz ±100 kHz.

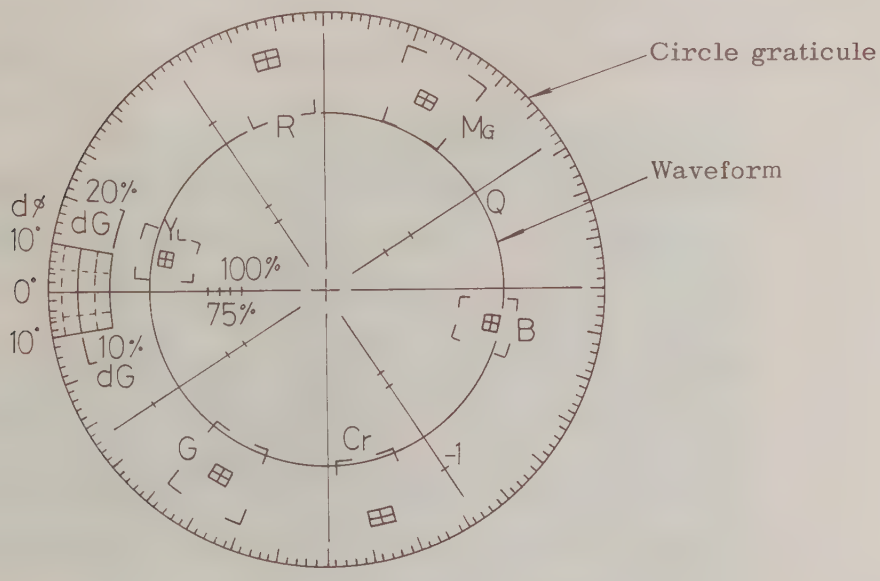


Fig. 8

⑲ Check of the return loss

a. Connect the return loss bridge (015-0149-00, Tektronix) to the input of of the oscilloscope.

b. Connect the 75 Ω-to-50 Ω impedance converter to the input of the return loss bridge.

c. Connect the 50 Ω coaxial cable between the sine-wave generator set to 5 MHz and 1 Vp-p approx. and the return loss bridge.

d. Terminate two cables of the return loss bridge with 75 Ω terminator.

e. Set CH1 and CH2 on the oscilloscope to 0.2 V/div.
Select the CH1 - CH2 MODE to place the oscilloscope in the free-run mode.

f. Remove one 75 Ω terminator from the return loss bridge and set the output of sine-wave generator to 0.5 Vp-p and 5 MHz by the oscilloscope.

This amplitude is to be monitored by CH1 or CH2.
(Do not observe it in the CH1 - CH2 mode.)
Reconnect the 75 Ω terminator to the return loss bridge.

g. Set the oscilloscope to 5 mV/div and set the AC-GND-DC selectors of CH1 and CH2 to AC.
Set V MODE to CH1-CH2 and make sweep in 20 μs/div.

h. Check that the amplitude of waveforms on the CRT is less than 1 mV when the input signal is changed from 25 Hz to 5 MHz.

i. Remove one 75 Ω terminator from the return loss bridge and connect it to the upper A INPUT OR EXT SUBCARRIER connector.
Connect the removed 75 Ω terminator to the lower A INPUT OR EXT SUBCARRIER connector.

j. Change the frequency of the sine-wave generator from 25 Hz to 5 MHz.

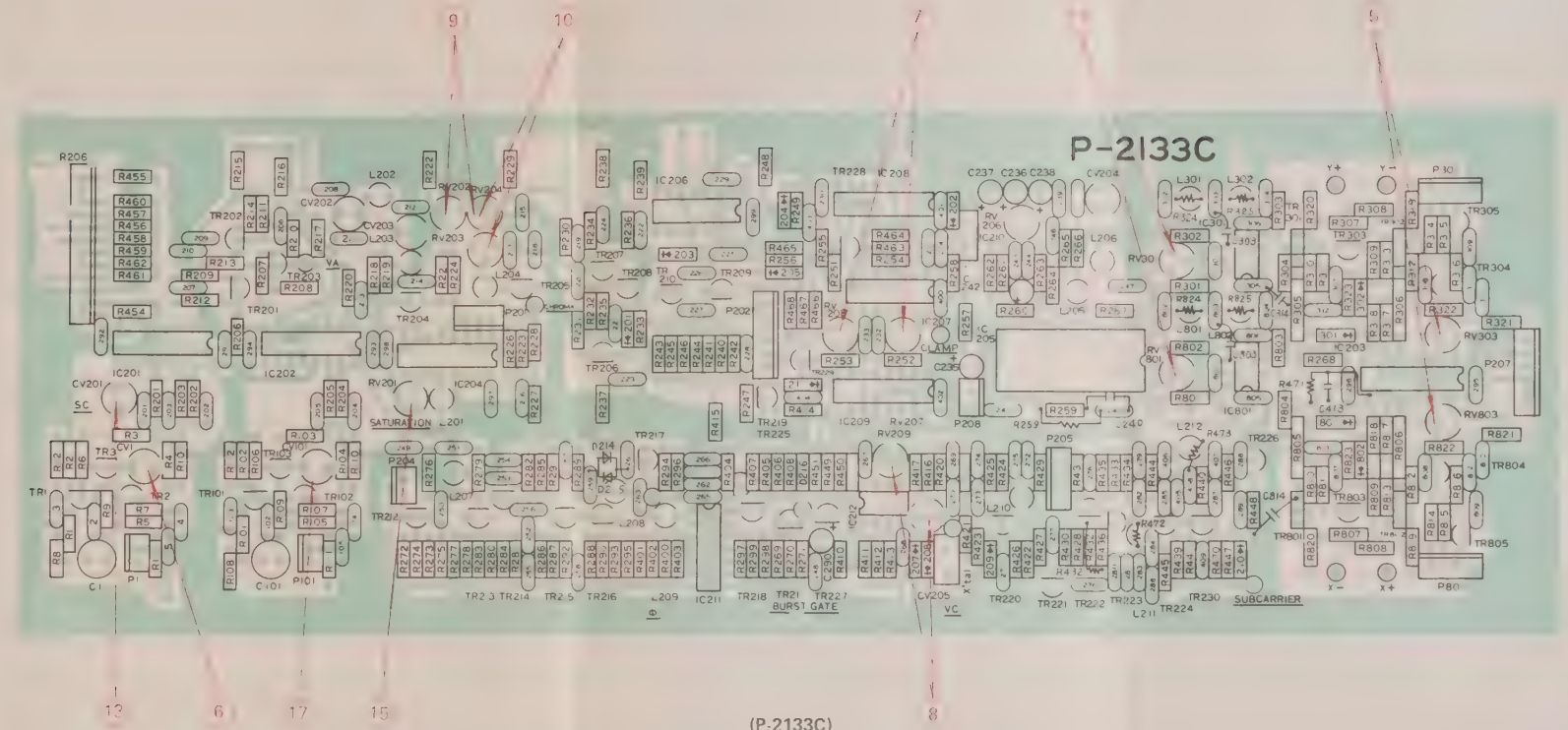
k. Change the VOLTS FULL SCALE switch of the V-069 to all the ranges.

l. In the j and k conditions, confirm that the amplitude of the displayed waveform is 2.5 mV minus the amplitude displayed at item h or less.

m. In the similar fashion, confirm the amplitude f or the B INPUT and EXT SUBCARRIER REFERENCE.

5. ELECTRICAL PARTS ARRANGEMENT

(with Adjustment Location)



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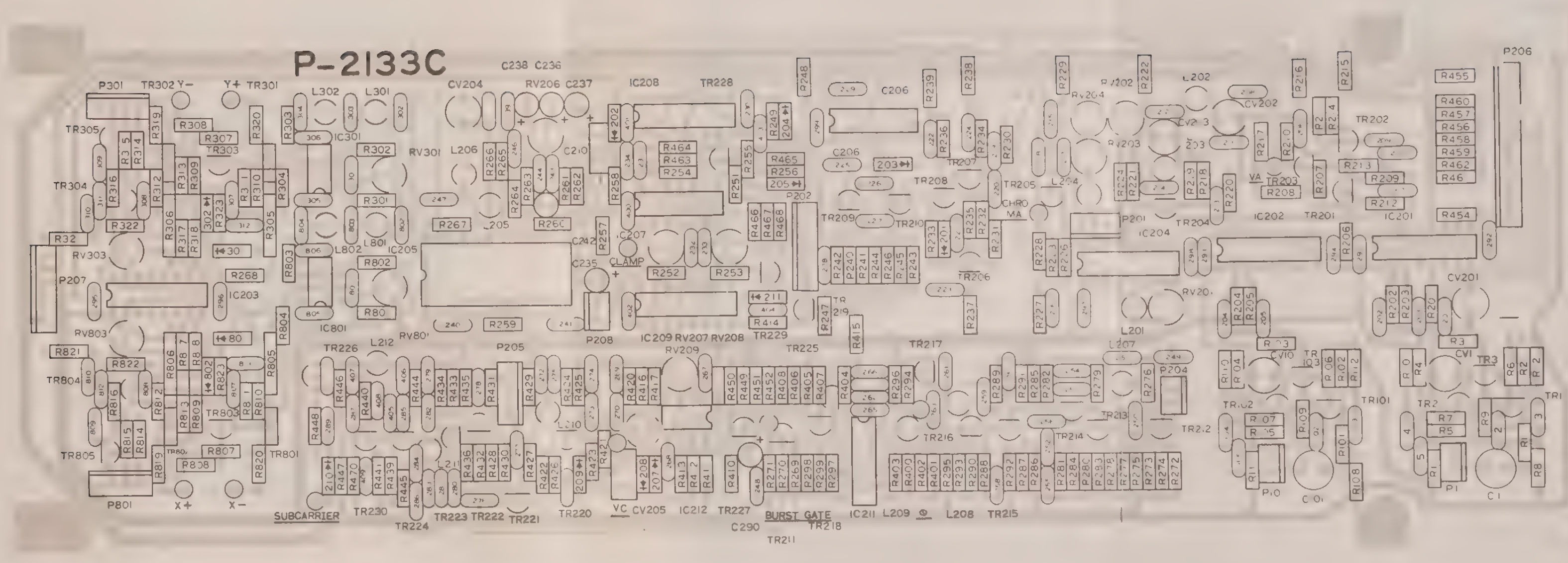
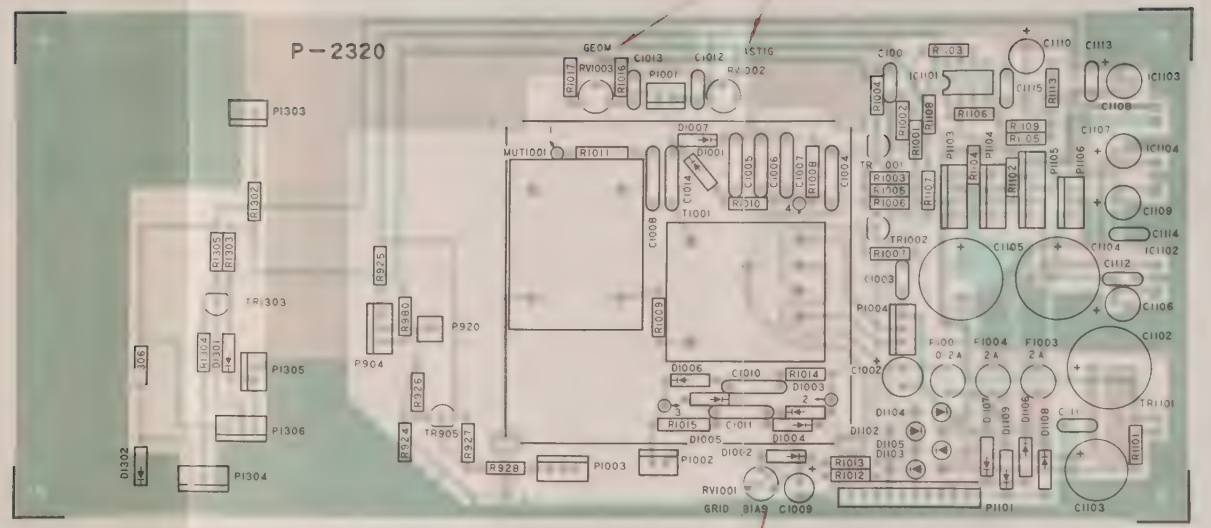
Parts Side



Soldering side



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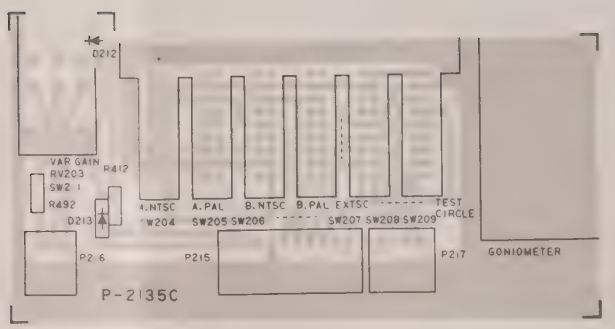
Parts side

(P-2011A)

(P-2137B)



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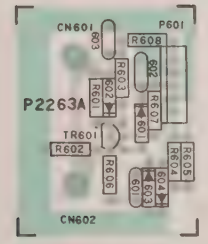
(P-2158A)



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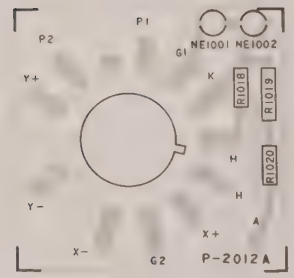


(P-2012A)

Parts side

6. ELECTRICAL PARTS LIST
VIDEO (P-2133)

Part Code	Symbol	Description	Q'ty
IDM0700	IC 201	IC MC74HC4053	1
IDM0700	IC 202	IC MC74HC4053	1
IDH0885	IC 203	IC HD14053B	1
IDM0700	IC 204	IC MC74HC4053	1
IDT0057	IC 205	IC TA7193P	1
IDH0998	IC 206	IC MC74HC02 (HD74HC02P)	1
IDH0982	IC 207	IC MC74HC00 (HD74HC00P)	1
IDT0139	IC 208	IC TC4528B	1
IDH1092	IC 209	IC MC74HC4538 (HD74HC4538)	1
ILH0108	IC 210	IC HA17805P	1
ILM0377	IC 211	IC MC1496P	1
ILT0050	IC 212	IC TL072CP	1
ILT0041	IC 301	IC TL071CP	1
ILT0041	IC 801	IC TL071CP	1
HTC0148	TR 1	Transistor 2SC458C	1
HTC0148	TR 2	Transistor 2SC458C	1
HTA0099	TR 3	Transistor 2SA781K	1
HTC0148	TR 101	Transistor 2SC458C	
HTC0148	TR 102	Transistor 2SC458C	
HTA0099	TR 103	Transistor 2SA781K	
HTC0148	TR 201	Transistor 2SC458C	1
HTC0148	TR 202	Transistor 2SC458C	1
HTA0224	TR 203	Transistor 2SA1029D	1
HTC0148	TR 204	Transistor 2SC458C	1
HTA0224	TR 205	Transistor 2SA1029D	1
HTC0148	TR 206	Transistor 2SC458C	1
HTA0224	TR 207	Transistor 2SA1029D	1
HTC0192	TR 208	Transistor 2SC641K-C	1
HTC0148	TR 209	Transistor 2SC458C	1
HTC0148	TR 210	Transistor 2SC458C	1
HTC0148	TR 211	Transistor 2SC458C	1
HTC0148	TR 212	Transistor 2SC458C	1
HTC0338	TR 213	Transistor 2SC1906	1
HTA0099	TR 214	Transistor 2SA781K	1
HTC0338	TR 215	Transistor 2SC1906	1
HTC0338	TR 216	Transistor 2SC1906	1
HTC0148	TR 217	Transistor 2SC458C	1
HTA0224	TR 218	Transistor 2SA1029D	1
	TR 219	Not Used	
HTC0148	TR 220	Transistor 2SC458C	1
HTC0148	TR 221	Transistor 2SC458C	1
HTA0099	TR 222	Transistor 2SA781K	1
HTC0338	TR 223	Transistor 2SC1906	1
HTC0148	TR 224	Transistor 2SC458C	1
HTA0224	TR 225	Transistor 2SA1029D	1
HTC0338	TR 226	Transistor 2SC1906	1
	TR 227	Not Used	
	TR 228	Not Used	
HTC0148	TR 229	Transistor 2SC458C	1
HTC0148	TR 230	Transistor 2SC458C	1
HTC0085	TR 301	Transistor 2SC1514	1
HTC0085	TR 302	Transistor 2SC1514	1
HTC0148	TR 303	Transistor 2SC458C	1
HTC0148	TR 304	Transistor 2SC458C	1
HTA0224	TR 305	Transistor 2SA1029D	1
HTC0085	TR 801	Transistor 2SC1514	1
HTC0085	TR 802	Transistor 2SC1514	1
HTC0148	TR 803	Transistor 2SC458C	1
HTC0148	TR 804	Transistor 2SC458C	1
HTA0224	TR 805	Transistor 2SA1029D	1

Part Code	Symbol	Description	Q'ty
HDS0108	D 201	Diode 1S2075K	1
HDH0029	D 202	Diode HZ5B	1
HDS0108	D 203	Diode 1S2075K	1
HDS0108	D 204	Diode 1S2075K	1
HDS0108	D 205	Diode 1S2075K	1
HDS0108	D 207	Diode 1S2075K	1
HDS0108	D 208	Diode 1S2075K	1
HDS0480	D 209	Diode 1SV68	1
8470479FR	D 210	Diode 1K34A	1
HDH0033	D 211	Diode HZ6B	1
HDS0108	D 214	Diode 1S2075K	1
HDS0108	D 215	Diode 1S2075K	1
HDH0159	D 216	Diode HZ-5B2	1
BSB0010	D 301	Jumper Ø0.5	R02
BSB0010	D 302	Jumper Ø0.5	R02
BSB0010	D 801	Jumper Ø0.5	R02
BSB0010	D 802	Jumper Ø0.5	R02
RME0777	R 1	R, Metal 1/4W 7.5kΩ ±1%	
RME0777	R 2	R, Metal 1/4W 7.5kΩ ±1%	1
RME0667	R 3	R, Metal 1/4W 1.82kΩ ±1%	1
RME0667	R 4	R, Metal 1/4W 1.82kΩ ±1%	1
RCR3431	R 5	R, Carbon 1/4W 820kΩ ±5%	1
RCR3090	R 6	R, Carbon 1/4W 39kΩ ±5%	1
RCR3060	R 7	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3022	R 8	R, Carbon 1/4W 56Ω ±5%	1
RCR3052	R 9	R, Carbon 1/4W 1kΩ ±5%	1
RCR3020	R 10	R, Carbon 1/4W 47Ω ±5%	1
RCR3020	R 11	R, Carbon 1/4W 47Ω ±5%	1
RCR3020	R 12	R, Carbon 1/4W 47Ω ±5%	1
RME0777	R 101	R, Metal 1/8W 7.5kΩ ±1%	1
RME0777	R 102	R, Metal 1/8W 7.5kΩ ±1%	1
RME0667	R 103	R, Metal 1/4W 1.82kΩ ±1%	1
RME0667	R 104	R, Metal 1/4W 1.82kΩ ±1%	1
RCR3431	R 105	R, Carbon 1/4W 820kΩ ±5%	1
RCR3090	R 106	R, Carbon 1/4W 39kΩ ±5%	1
RCR3060	R 107	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3022	R 108	R, Carbon 1/4W 56Ω ±5%	1
RCR3052	R 109	R, Carbon 1/4W 1kΩ ±5%	1
RCR3020	R 110	R, Carbon 1/4W 47Ω ±5%	1
RCR3020	R 111	R, Carbon 1/4W 47Ω ±5%	1
RCR3020	R 112	R, Carbon 1/4W 47Ω ±5%	1
8470479EQ	R 201	R, Metal 1/4W 34kΩ ±1%	1
8470479ER	R 202	R, Metal 1/4W 7.5kΩ ±1%	1
RCR3058	R 203	R, Carbon 1/4W 1.8kΩ ±5%	1
8470479ER	R 204	R, Metal 1/4W 7.5kΩ ±1%	1
RCR3058	R 205	R, Carbon 1/4W 1.8kΩ ±5%	1
8470479ER	R 206	R, Metal 1/4W 7.5kΩ ±5%	1
RCR3431	R 207	R, Carbon 1/4W 820kΩ ±5%	1
RCR3090	R 208	R, Carbon 1/4W 39kΩ ±5%	1
RCR3060	R 209	R, Carbon 1/4W 2.2kΩ ±5%	1
RME0682	R 210	R, Metal 1/4W 10kΩ ±1%	1
RCR3059	R 211	R, Carbon 1/4W 2kΩ ±5%	1
RCR3032	R 212	R, Carbon 1/4W 150Ω ±5%	1
RCR3052	R 213	R, Carbon 1/4W 1kΩ ±5%	1
RCR3020	R 214	R, Carbon 1/4W 47Ω ±5%	1
RCR3020	R 215	R, Carbon 1/4W 47Ω ±5%	1
RCR3020	R 216	R, Carbon 1/4W 47Ω ±5%	1

Part Code	Symbol	Description				Q'ty
RME0658	R 217	R, Metal	1/4W	332Ω	±1%	1
8470479FY	R 218	R, Metal	1/4W	845Ω	±1%	1
RCR3036	R 219	R, Carbon	1/4W	220Ω	±5%	1
RCR3028	R 220	R, Carbon	1/4W	100Ω	±5%	1
RCR3047	R 221	R, Carbon	1/4W	620Ω	±5%	1
RCR3028	R 222	R, Carbon	1/4W	100Ω	±5%	1
RCR3054	R 223	R, Carbon	1/4W	1.2kΩ	±5%	1
RME0652	R 224	R, Metal	1/4W	100Ω	±1%	1
RCR3036	R 226	R, Carbon	1/4W	220Ω	±5%	1
RCR3028	R 227	R, Carbon	1/4W	100Ω	±5%	1
RCR3052	R 228	R, Carbon	1/4W	1kΩ	±5%	1
RCR3028	R 229	R, Carbon	1/4W	100Ω	±5%	1
RCR3065	R 230	R, Carbon	1/4W	3.6k	±5%	1
RCR3047	R 231	R, Carbon	1/4W	620Ω	±5%	1
RCR3095	R 232	R, Carbon	1/4W	62kΩ	±5%	1
RCR3102	R 233	R, Carbon	1/4W	220kΩ	±5%	1
RCR3101	R 234	R, Carbon	1/4W	150kΩ	±5%	1
RCR3080	R 235	R, Carbon	1/4W	15kΩ	±5%	1
RCR3088	R 236	R, Carbon	1/4W	33kΩ	±5%	1
RCR3020	R 237	R, Carbon	1/4W	47Ω	±5%	1
RCR3020	R 238	R, Carbon	1/4W	47Ω	±5%	1
RCR3020	R 239	R, Carbon	1/4W	47Ω	±5%	1
RME0666	R 240	R, Metal	1/4W	1.5kΩ	±1%	1
RME0668	R 241	R, Metal	1/4W	2.21kΩ	±1%	1
8470479ES	R 242	R, Metal	1/4W	5.23kΩ	±1%	1
RME0672	R 243	R, Metal	1/4W	4.75kΩ	±1%	1
RME0672	R 244	R, Metal	1/4W	4.75kΩ	±1%	1
RME0670	R 245	R, Metal	1/4W	3.32kΩ	±1%	1
RME0686	R 246	R, Metal	1/4W	68.1kΩ	±1%	1
RCR3020	R 247	R, Carbon	1/4W	47Ω	±5%	1
RCR3020	R 248	R, Carbon	1/4W	47Ω	±5%	1
RCR3076	R 249	R, Carbon	1/4W	10kΩ	±5%	1
RCR3028	R 251	R, Carbon	1/4W	100kΩ	±5%	1
RCR3052	R 252	R, Carbon	1/4W	1kΩ	±5%	1
RCR3062	R 253	R, Carbon	1/4W	2.7kΩ	±5%	1
RCR3417	R 254	R, Carbon	1/4W	120kΩ	±5%	1
RCR3076	R 255	R, Carbon	1/4W	10kΩ	±5%	1
RCR3052	R 256	R, Carbon	1/4W	1kΩ	±5%	1
RCR3052	R 257	R, Carbon	1/4W	1kΩ	±5%	1
RCR3045	R 258	R, Carbon	1/4W	510Ω	±5%	1
RCR3078	R 259	R, Carbon	1/4W	12kΩ	±5%	1
RCR3097	R 260	R, Carbon	1/4W	75kΩ	±5%	1
RCR3054	R 261	R, Carbon	1/4W	1.2kΩ	±5%	1
RCR3088	R 262	R, Carbon	1/4W	33kΩ	±5%	1
RCR3088	R 263	R, Carbon	1/4W	33kΩ	±5%	1
RCR3074	R 264	R, Carbon	1/4W	8.2kΩ	±5%	1
RCR3044	R 265	R, Carbon	1/4W	470Ω	±5%	1
RCR3044	R 266	R, Carbon	1/4W	470Ω	±5%	1
RCR3044	R 267	R, Carbon	1/4W	470Ω	±5%	1
RCR3054	R 268	R, Carbon	1/4W	1.2kΩ	±5%	1
RCR3069	R 269	R, Carbon	1/4W	5.1kΩ	±5%	1
RCR3068	R 270	R, Carbon	1/4W	4.7kΩ	±5%	1
RCR3068	R 271	R, Carbon	1/4W	4.7kΩ	±5%	1
RCR3100	R 272	R, Carbon	1/4W	100kΩ	±5%	1
RCR3052	R 273	R, Carbon	1/4W	1kΩ	±5%	1
RCR3028	R 274	R, Carbon	1/4W	100Ω	±5%	1
RCR3028	R 275	R, Carbon	1/4W	100Ω	±5%	1
RCR3055	R 276	R, Carbon	1/4W	1.3kΩ	±5%	1
RCR3068	R 277	R, Carbon	1/4W	4.7kΩ	±5%	1
RCR3044	R 278	R, Carbon	1/4W	470Ω	±5%	1
RCR3052	R 279	R, Carbon	1/4W	1kΩ	±5%	1

Part Code	Symbol	Description				Q'ty
RCR3045	R 280	R, Carbon	1/4W	510Ω	±5%	1
RCR3052	R 281	R, Carbon	1/4W	1kΩ	±5%	1
RCR3049	R 282	R, Carbon	1/4W	750Ω	±5%	1
RCR3071	R 283	R, Carbon	1/4W	6.2kΩ	±5%	1
RCR3054	R 284	R, Carbon	1/4W	1.2kΩ	±5%	1
RCR3020	R 285	R, Carbon	1/4W	47Ω	±5%	1
RCR3020	R 286	R, Carbon	1/4W	47Ω	±5%	1
RCR3052	R 287	R, Carbon	1/4W	1kΩ	±5%	1
RCR3063	R 288	R, Carbon	1/4W	3.0kΩ	±5%	1
RCR3052	R 289	R, Carbon	1/4W	1kΩ	±5%	1
RCR3052	R 290	R, Carbon	1/4W	1kΩ	±5%	1
RCR3020	R 291	R, Carbon	1/4W	47Ω	±5%	1
RCR3020	R 292	R, Carbon	1/4W	47Ω	±5%	1
RCR3040	R 293	R, Carbon	1/4W	330Ω	±5%	1
RCR3041	R 294	R, Carbon	1/4W	360Ω	±5%	1
RCR3044	R 295	R, Carbon	1/4W	470Ω	±5%	1
RCR3020	R 296	R, Carbon	1/4W	47Ω	±5%	1
RCR3028	R 297	R, Carbon	1/4W	100Ω	±5%	1
RCR3052	R 298	R, Carbon	1/4W	1kΩ	±5%	1
RCR3028	R 299	R, Carbon	1/4W	100Ω	±5%	1
RME0667	R 301	R, Metal	1/4W	1.82kΩ	±1%	1
RCR4176	R 302	R, Carbon	1/4W	4.7MΩ	±5%	1
BSB0010	R 303	Jumper		Ø0.5		R02
8470479EI	R 304	R, Metal	1/4W	316Ω	±1%	1
RMR2782	R 305	R, Metal	1W	10kΩ	±5%	1
RMR2782	R 306	R, Metal	1W	10kΩ	±5%	1
RCR3038	R 307	R, Carbon	1/4W	270Ω	±5%	1
RCR3038	R 308	R, Carbon	1/4W	270Ω	±5%	1
8470479EU	R 309	R, Metal	1/4W	402Ω	±1%	1
RME0666	R 310	R, Metal	1/4W	1.5kΩ	±1%	1
8470479EV	R 311	R, Metal	1/4W	2.49kΩ	±1%	1
RCR3040	R 312	R, Carbon	1/4W	330Ω	±5%	1
RCR3072	R 313	R, Carbon	1/4W	6.8kΩ	±5%	1
8470479EW	R 314	R, Metal	1/4W	110kΩ	±1%	1
RCR3040	R 315	R, Carbon	1/4W	330Ω	±5%	1
RCR3040	R 316	R, Carbon	1/4W	330Ω	±5%	1
BSB0010	R 317	Jumper		Ø0.5		R02
RCR3085	R 318	R, Carbon	1/4W	24kΩ	±5%	1
RCR3040	R 319	R, Carbon	1/4W	330Ω	±5%	1
RCR3040	R 320	R, Carbon	1/4W	330Ω	±5%	1
RCR3028	R 321	R, Carbon	1/4W	100Ω	±5%	1
RCR3020	R 322	R, Carbon	1/4W	47Ω	±5%	1
RCR3020	R 323	R, Carbon	1/4W	47Ω	±5%	1
8470479DT	R 324	R, Metal	1/4W	2.73kΩ	±1%	1
8470479DT	R 325	R, Metal	1/4W	2.73kΩ	±1%	1
RCR3052	R 400	R, Carbon	1/4W	1kΩ	±5%	1
RCR3047	R 401	R, Carbon	1/4W	620Ω	±5%	1
RCR3052	R 402	R, Carbon	1/4W	1kΩ	±5%	1
RCR3026	R 403	R, Carbon	1/4W	82Ω	±5%	1
RCR3020	R 404	R, Carbon	1/4W	47Ω	±5%	1
RME0665	R 405	R, Metal	1/4W	1.21kΩ	±1%	1
RME0665	R 406	R, Metal	1/4W	1.21kΩ	±1%	1
RCR3060	R 407	R, Carbon	1/4W	2.2kΩ	±5%	1
RCR3020	R 408	R, Carbon	1/4W	47Ω	±5%	1
RCR3076	R 410	R, Carbon	1/4W	10kΩ	±5%	1
RCR3069	R 411	R, Carbon	1/4W	5.1kΩ	±5%	1
RCR3092	R 412	R, Carbon	1/4W	47kΩ	±5%	1
RCR3060	R 413	R, Carbon	1/4W	2.2kΩ	±5%	1
RCR3045	R 416	R, Carbon	1/4W	510Ω	±5%	1

Part Code	Symbol	Description	Q'ty
RCR3069	R 417	R, Carbon 1/4W 5.1kΩ ±5%	1
RCR3100	R 420	R, Carbon 1/4W 100kΩ ±5%	1
RCR3080	R 421	R, Carbon 1/4W 15kΩ ±5%	1
RCR3020	R 422	R, Carbon 1/4W 47Ω ±5%	1
RCR3100	R 423	R, Carbon 1/4W 100kΩ ±5%	1
RCR3038	R 424	R, Carbon 1/4W 270Ω ±5%	1
RCR3052	R 425	R, Carbon 1/4W 1kΩ ±5%	1
RCR3032	R 426	R, Carbon 1/4W 150Ω ±5%	1
RCR3020	R 427	R, Carbon 1/4W 47Ω ±5%	1
RCR3050	R 428	R, Carbon 1/4W 820Ω ±5%	1
RCR3020	R 429	R, Carbon 1/4W 47Ω ±5%	1
BSB0010	R 430	Jumper Ø0.5	R02
RCR3059	R 431	R, Carbon 1/4W 2k[illegible] ±5%	1
RCR3052	R 432	R, Carbon 1/4W 1kΩ ±5%	1
RCR3076	R 433	R, Carbon 1/4W 10k[illegible] ±5%	1
RCR3062	R 434	R, Carbon 1/4W 2.7kΩ ±5%	1
RCR3020	R 435	R, Carbon 1/4W 47Ω ±5%	1
RCR3060	R 436	R, Carbon 1/4W 2.2k ±5%	1
RCR3052	R 439	R, Carbon 1/4W 1k[illegible] ±5%	1
RCR3020	R 440	R, Carbon 1/4W 47[illegible] ±5%	1
RCR3020	R 441	R, Carbon 1/4W 47 ±5%	1
RCR3020	R 444	R, Carbon 1/4W 47[illegible] ±5%	1
RCR3020	R 445	R, Carbon 1/4W 47[illegible] ±5%	1
RCR3076	R 446	R, Carbon 1/4W 10k[illegible] ±5%	1
RCR3076	R 447	R, Carbon 1/4W 10k[illegible] ±5%	1
RCR3106	R 448	R, Carbon 1/4W 1M[illegible] ±5%	1
	R 449	Not Used	
	R 450	Not Uset	
RCR3047	R 451	R, Carbon 1/4W 620Ω ±5%	1
	R 452	Not Used	
RCR3100	R 454	R, Carbon 1/4W 100kΩ ±5%	1
RCR3100	R 455	R, Carbon 1/4W 100kΩ ±5%	1
RCR3100	R 456	R, Carbon 1/4W 100kΩ ±5%	1
RCR3100	R 457	R, Carbon 1/4W 100kΩ ±5%	1
RCR3100	R 458	R, Carbon 1/4W 100kΩ ±5%	1
RCR3100	R 459	R, Carbon 1/4W 100kΩ ±5%	1
RCR3100	R 460	R, Carbon 1/4W 100kΩ ±5%	1
RCR3100	R 461	R, Carbon 1/4W 100kΩ ±5%	1
RCR3100	R 462	R, Carbon 1/4W 100kΩ ±5%	1
RME0791	R 463	R, Metal 1/4W 13.7kΩ ±1%	1
RCR3048	R 465	R, Carbon 1/4W 680Ω ±5%	1
RCR3073	R 466	R, Carbon 1/4W 7.5kΩ ±5%	1
RCR3064	R 467	R, Carbon 1/4W 3.3kΩ ±5%	1
RCR3044	R 468	R, Carbon 1/4W 470Ω ±5%	1
RCR3052	R 470	R, Carbon 1/4W 1kΩ ±5%	1
RCR3052	R 471	R, Carbon 1/4W 1kΩ ±5%	1
RCR3038	R 472	R, Carbon 1/4W 270Ω ±5%	1
RME0798	R 473	R, Metal 1/4W 1.1kΩ ±1%	1
RME0667	R 801	R, Metal 1/4W 1.82kΩ ±1%	1
8470479AJ	R 802	R, Metal 1/4W 4.7MΩ ±5%	1
BSB0010	R 803	Jumper Ø0.5	R02
RME0733	R 804	R, Metal 1/4W 412Ω ±1%	1
RMR2782	R 805	R, Metal 1W 10kΩ ±5%	1
RMR2782	R 806	R, Metal 1W 10kΩ ±5%	1
RCR3035	R 807	R, Carbon 1/4W 200Ω ±5%	1

Part Code	Symbol	Description	Q'ty
RCR3035	R 808	R, Carbon 1/4W 200Ω ±5%	1
8470479EY	R 809	R, Metal 1/4W 453Ω ±1%	1
RME0666	R 810	R, Metal 1/4W 1.5kΩ ±1%	1
8470479EV	R 811	R, Metal 1/4W 2.49kΩ ±1%	1
RCR3040	R 812	R, Carbon 1/4W 330Ω ±5%	1
RCR3072	R 813	R, Carbon 1/4W 6.8kΩ ±5%	1
RME0734	R 814	R, Metal 1/4W 71.5kΩ ±1%	1
RCR3040	R 815	R, Carbon 1/4W 330Ω ±5%	1
RCR3040	R 816	R, Carbon 1/4W 330Ω ±5%	1
BSB0010	R 817	Jumper Ø0.5	R02
8470479EE	R 818	R, Metal 1/4W 14.3kΩ ±1%	1
RCR3040	R 819	R, Carbon 1/4W 330Ω ±5%	1
RCR3040	R 820	R, Carbon 1/4W 330Ω ±5%	1
RCR3020	R 821	R, Carbon 1/4W 100Ω ±5%	1
RCR3020	R 822	R, Carbon 1/4W 47Ω ±5%	1
RCR3020	R 823	R, Carbon 1/4W 47Ω ±5%	1
8470479DT	R 824	R, Metal 1/4W 2.73kΩ ±1%	1
8470479DT	R 825	R, Metal 1/4W 2.73kΩ ±1%	1
RNT0189	RV 201	VR, Metal EVN38CA00B23 2KB	1
RNT0187	RV 202	VR, Metal EVN38CA00B52 500B	1
RNT0187	RV 203	VR, Metal EVN38CA00B52 500B	1
RNT0185	RV 204	VR, Metal EVN38CA00B12 100B	1
RNT0189	RV 207	VR, Metal EVN38CA00B23 2kB	1
RNT0189	RV 208	VR, Metal EVN38CA00B23 2kB	1
RNT0190	RV 209	VR, Metal EVN38CA00B53 5KB	1
RNT0188	RV 301	VR, Metal EVN38CA00B13 1KB	1
RNT0188	RV 303	VR, Metal EVN38CA00B13 1KB	1
RNT0188	RV 801	VR, Metal EVN38CA00B13 1KB	1
RNT0188	RV 803	VR, Metal EVN38CA00B13 1KB	1
CES0212	C 1	C, AL Elyc 10V 100μF BP +20%	1
CCR0141	C 2	C, Ceramic 50V 1000 pF CH ±5%	1
8470479FB	C 3	C, Ceramic 500V 0.047μF +80% -20%	1
CCR0128	C 4	C, Ceramic 50V 0.1μF +80% -20%	1
CCR0128	C 5	C, Ceramic 50V 0.1μF +80% -20%	1
CES0212	C 101	C, AL Elyc 10V 100μF BP +20%	1
CCR0141	C 102	C, Ceramic 50V 1000 pF CH ±5 %	1
8470479FB	C 103	C, Ceramic 500V 0.047μF +80% -20%	1
CCR0128	C 104	C, Ceramic 50V 0.1μF +80% -20%	1
CCR0128	C 105	C, Ceramic 50V 0.1μF +80% -20%	1
CCR0220	C 201	C, Ceramic 50V 6 pF CH ±5%	1
CCR0226	C 202	C, Ceramic 50V 47 pF CH ±5%	1
CCR0215	C 203	C, Ceramic 50V 330pF CH ±5%	1
CCR0226	C 204	C, Ceramic 50V 47 pF CH ±5%	1
CCR0215	C 205	C, Ceramic 50V 330pF CH ±5%	1
CCC1133	C 206	C, Ceramic 50V 1 pF CH ±0.25pF	1
CCR0141	C 207	C, Ceramic 50V 1000 pF CH ±5%	1
8470479FB	C 208	C, Ceramic 500V 0.047μF +80% -20%	1
CCR0128	C 209	C, Ceramic 50V 0.1μF +80% -20%	1
CCR0128	C 210	C, Ceramic 50V 0.1μF +80% -20%	1
8470479DA	C 211	C, Ceramic 50V 68pF UJ ±5%	1
	C 212	Not Used	
CCR0128	C 213	C, Ceramic 50V 0.1μF +80% -20%	1
CCR0128	C 214	C, Ceramic 50V 0.1μF +80% -20%	1

Part Code	Symbol		Description					Q'ty
CCR0213	C	215	C, Ceramic	50V	360pF	CH	±5%	1
CCR0128	C	216	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	217	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0144	C	218	C, Ceramic	50V	0.01μF		±20%	1
8470479CK	C	219	C, Ceramic	50V	1μF		+80% -20%	1
8470479CK	C	220	C, Ceramic	50V	1μF		+80% -20%	1
CCR0138	C	221	C, Ceramic	50V	0.068μF		±10%	1
8470479FB	C	222	C, Ceramic	500V	0.047μF		+80% -20%	1
CCR0128	C	223	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	224	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0141	C	225	C, Ceramic	50V	1000pF	CH	±5%	1
CCR0128	C	226	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0043	C	227	C, Ceramic	50V	0.0047μF		+80% -20%	1
CCR0128	C	228	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	229	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0208	C	230	C, Ceramic	50V	220pF	CH	±5%	1
CCR0208	C	231	C, Ceramic	50V	220pF	CH	±5%	1
CCR0229	C	232	C, Ceramic	50V	470pF	CH	±5%	1
CCR0141	C	233	C, Ceramic	50V	1000pF	CH	±5%	1
CCR0225	C	234	C, Ceramic	50V	470pF	CH	±5%	1
CES0032	C	235	C, AL Elyc	25V	47μF		±20%	1
CES0032	C	236	C, AL Elyc	25V	47μF		±20%	1
CEC0034	C	237	C, AL Elyc	6.3V	100μF		±20%	1
CES0032	C	238	C, AL Elyc	25V	47 pF		±20%	1
CCR0128	C	239	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	240	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	241	C, Ceramic	50V	0.1μF		+80% -20%	1
CES0426	C	242	C, AL Elyc	25V	4.7μF		±20%	1
CCR0137	C	243	C, Ceramic	50V	0.047μF		±10%	1
CCR0137	C	244	C, Ceramic	50V	0.047μF		±10%	1
CCR0225	C	246	C, Ceramic	50V	33pF	CH	±5%	1
CCR0144	C	247	C, Ceramic	50V	0.01μF		±20%	1
CCR0144	C	248	C, Ceramic	50V	0.01μF		±20%	1
CCR0128	C	249	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	250	C, Ceramic	50V	0.1μF		+80% -20%	1
8470479FJ	C	251	C, Ceramic	50V	82pF	UJ	±5%	1
8470479CK	C	252	C, Ceramic	50V	1μF		+80% -20%	1
8470479CK	C	253	C, Ceramic	50V	1μF		+80% -20%	1
CCR0128	C	254	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	255	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0144	C	256	C, Ceramic	50V	0.01μF		±20%	1
CCR0128	C	257	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	258	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0144	C	259	C, Ceramic	50V	0.01μF		±20%	1
CCC1359	C	261	C, Ceramic	50V	150pF	UJ	±5%	1
CCR0128	C	262	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	263	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	265	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	266	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	267	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	268	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	269	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0141	C	270	C, Ceramic	50V	1000pF	CH	±5%	1
CCR0128	C	271	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	272	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0230	C	273	C, Ceramic	50V	150pF	CH	±5%	1
CCR0230	C	274	C, Ceramic	50V	150pF	CH	±5%	1
CCR0230	C	275	C, Ceramic	50V	150pF	CH	±5%	1
CCR0239	C	276	C, Ceramic	50V	100pF		±5%	1
CCR0144	C	277	C, Ceramic	50V	0.01μF		±20%	1

Part Code	Symbol		Description					Q'ty
CCR0225	C	278	C, Ceramic	50V	33 pF	CH	±5%	1
CCR0128	C	279	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	280	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	281	C, Ceramic	50V	0.1μF		+80% -20%	1
	C	282	Not Used					
	C	283	Not Used					
CCR0128	C	285	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	286	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0144	C	287	C, Ceramic	50V	0.01μF		±20%	1
CCR0144	C	288	C, Ceramic	50V	0.01μF		±20%	1
CCR0128	C	289	C, Ceramic	50V	0.1μF		+80% -20%	1
CES0032	C	290	C, Ceramic	25V	47μF		±20%	1
CCR0128	C	291	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	292	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	293	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	294	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	295	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	296	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	297	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	298	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	299	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0144	C	301	C, Ceramic	50V	0.01μF		±20%	1
	C	302	Not Used					
CCR0211	C	303	C, Ceramic	50V	68 pF	CH	±5%	1
CCR0226	C	304	C, Ceramic	50V	47pF	CH	±5%	1
CCR0128	C	305	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	306	C, Ceramic	50V	0.1μF		+80% -20%	1
8470479CK	C	307	C, Ceramic	50V	1μF		+80% -20%	1
8470479CK	C	308	C, Ceramic	50V	1μF		+80% -20%	1
8470479CK	C	309	C, Ceramic	500V	0.047μF		+80% -20%	1
8470479FB	C	310	C, Ceramic	500V	0.047μF		+80% -20%	1
CCR0128	C	311	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	312	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0229	C	314	C, Ceramic	50V	470 pF	CH	±5%	1
CCR0128	C	400	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	401	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	402	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0215	C	403	C, Ceramic	50V	330 pF	CH	±5%	1
8470479CK	C	404	C, Ceramic	50V	1μF		+80% -20%	1
	C	405	Not Used					
	C	406	Not Used					
CCR0245	C	407	C, Ceramic	50V	180pF	CH	±5%	1
CCR0128	C	408	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	409	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0230	C	410	C, Ceramic	50V	150pF	CH	±5%	1
CCR0141	C	412	C, Ceramic	50V	1000pF	CH	±5%	1
	C	413	Not Used					
CCR0144	C	801	C, Ceramic	50V	1000pF		±20%	1
	C	802	Not Used					
CCR0227	C	803	C, Ceramic	50V	68 pF	CH	±5%	1
CCR0225	C	804	C, Ceramic	50V	33pF	CH	±5%	1
CCR0128	C	805	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	806	C, Ceramic	50V	0.1μF		+80% -20%	1
8470479CK	C	807	C, Ceramic	50V	1μF		+80% -20%	1
8470479CK	C	808	C, Ceramic	50V	1μF		+80% -20%	1
8470479CK	C	809	C, Ceramic	50V	1μF		+80% -20%	1
CCR0137	C	810	C, Ceramic	50V	0.047μF		+80% -20%	1
CCR0128	C	812	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0128	C	813	C, Ceramic	50V	0.1μF		+80% -20%	1
CCR0229	C	814	C, Ceramic	50V	470 pF	CH	±5%	1
8470479CW	CV	1	C, Variable	TZ03100FR				1

PU (P-2320)

Part Code	Symbol		Description		Q'ty
8470479CW	CV	101	C, Variable	TZ 03Z 100 FR	1
8470479CW	CV	201	C, Variable	TZ 03Z 100FR	1
	CV	202	Not Used		
	CV	203	Not Used		
8470479CW	CV	204	C, Variable	TZ 03Z 100FR	1
8470479EF	CV	205	C, Variable	TZ 03Z 450FR	1
TLF0035	L	201	Coil	FL-5H 27μH ±10%	1
TLF0035	L	202	Coil	FL-5H 27μH ±10%	1
	L	203	Not Used		
TLF0029	L	204	Coil	FL-4H 6.8μH ±10%	1
TLF0104	L	205	Coil	FL-5H 680μH ±10%	1
TLF0104	L	206	Coil	FL-5H 680μH ±10%	1
TLF0018	L	207	Coil	FL-5H 56μH ±10%	1
TLF0030	L	208	Coil	FL-5H 10μH ±10%	1
TLF0067	L	209	Coil	FL-5H 100μH ±10%	1
TLF0042	L	210	Coil	FL-5H 15μH ±10%	1
BSB0010	L	211	Jumper	Ø0.5	R02
TLF0030	L	212	Coil	FL-5H 10μH ±10%	1
AAK0002			X'tal	HC43/U 3.579545 MHz	1
JBX1907	P	1	Connector	171825-2	1
JBX1907	P	101	Connector	171825-2	1
JBX0468	P	201	Connector	171825-3	1
JBX0470	P	202	Connector	171825-6	1
JBX1907	P	204	Connector	171825-2	1
JBX0704	P	205	Connector	171825-4	1
JBX0452	P	206	Connector	1-171825-2	1
JBX0470	P	207	Connector	171825-6	1
JBX1907	P	208	Connector	171825-2	1
JBX0704	P	301	Connector	171825-4	1
JBR0019			Connector	Y(-) RT-01T-1.0B	1
JBR0019			Connector	Y(+) RT-01T-1.0B	1
JBV0704	P	801	Connector	171825-4	1
JBR0019			Connector	X(-) RT-01T-1.0B	1
JBR0019			Connector	X(+) RT-01T-1.0B	1
ETS0155			Check pin	LC-1-G	7
8480934A			P.C.B	P-2133	1

Part Code	Symbol		Description		Q'ty
ILT0041	IC	1101	IC	TL071CP	1
ILH0109	IC	1102	IC	HA17808P	1
ILM0342	IC	1103	IC	μPC7908	1
ILH0108	IC	1104	IC	HA17805P	1
HTA0104	TR	905	Transistor	2FA778AK	1
HTK0011	TR	1001	Transistor	2SK30AY	1
HTA0224	TR	1002	Transistor	2SA1029D	1
HTA0322	TR	1101	Transistor	2SA1009L	1
HTA0224	TR	1303	Transistor	2SA1029D	1
HDY0031	D	1001	Diode	Y10GA	1
HDH0072	D	1002	Diode	HZ22	1
HDS0250	D	1003	Diode	1SS83	1
HDS0250	D	1004	Diode	1SS83	1
HDS0250	D	1005	Diode	1SS83	1
HDS0250	D	1006	Diode	1SS83	1
HDY0031	D	1007	Diode	Y10GA	1
HDV0022	D	1102	Diode	V06G	1
HDV0022	D	1103	Diode	V06G	1
HDV0022	D	1104	Diode	V06G	1
HDV0022	D	1105	Diode	V06G	1
HDD0121	D	1106	Diode	10D1	1
HDD0121	D	1107	Diode	10D1	1
HDD0121	D	1108	Diode	10D1	1
HDD0121	D	1109	Diode	10D1	1
HDS0108	D	1301	Diode	1S2075K	1
HDH0213	D	1302	Diode	HZ-9A	1
RCR0084	R	924	R, Carbon	1/4W 22kΩ ±5%	1
RCR3044	R	925	R, Carbon	1/4W 470Ω ±5%	1
RCR3088	R	926	R, Carbon	1/4W 33kΩ ±5%	1
RCR3436	R	927	R, Carbon	1/4W 1.5MΩ ±5%	1
RMV0005	R	928	R, Metal	1/2W 10MΩ ±5%	1
RCR3059	R	980	R, Carbon	1/4W 2kΩ ±5%	1
8470479BP	R	1001	R, Metal	1/4W 909kΩ ±1%	1
8470479FQ	R	1002	R, Metal	1/4W 453kΩ ±1%	1
RCR3102	R	1003	R, Carbon	1/4W 220kΩ ±5%	1
RCR3052	R	1004	R, Carbon	1/4W 1kΩ ±5%	1
RCR3092	R	1005	R, Carbon	1/4W 47kΩ ±5%	1
RCR3069	R	1006	R, Carbon	1/4W 5.1kΩ ±5%	1
RCR3028	R	1007	R, Carbon	1/4W 100Ω ±5%	1
RMV0004	R	1008	R, Metal	1/2W 22.1MΩ ±1%	1
RCR3076	R	1009	R, Carbon	1/4W 10kΩ ±5%	1
RCR3072	R	1010	R, Carbon	1/4W 6.8kΩ ±5%	1
RMV0010	R	1011	R, Metal	1/2W 2.2MΩ ±5%	1
RCR3060	R	1012	R, Carbon	1/4W 2.2kΩ ±5%	1
RCR3060	R	1013	R, Carbon	1/4W 2.2kΩ ±5%	1
RCR3068	R	1014	R, Carbon	1/4W 4.7kΩ ±5%	1
RMV0005	R	1015	R, Metal	1/2W 10MΩ ±5%	1
RCR3076	R	1016	R, Carbon	1/4W 10kΩ ±5%	1
RCR3084	R	1017	R, Carbon	1/4W 22kΩ ±5%	1
RCR3100	R	1101	R, Carbon	1/4W 100kΩ ±5%	1
RCR3080	R	1102	R, Carbon	1/4W 15kΩ ±5%	1
RCR3052	R	1103	R, Carbon	1/4W 1kΩ ±5%	1

Part Code	Symbol	Description	Q'ty
RME0673	R 1104	R, Metal 1/4W 5.62kΩ ±1%	1
RME0673	R 1105	R, Metal 1/4W 5.62kΩ ±1%	1
RCR3060	R 1106	R, Carbon 1/4W 2.2kΩ ±5%	1
8470479AR	R 1107	R, Metal 1/4W 90.9kΩ ±1%	1
RME0810	R 1108	R, Metal 1/4W 61.9kΩ ±1%	1
RME0673	R 1109	R, Metal 1/4W 5.62kΩ ±1%	1
RCR3052	R 1113	R, Carbon 1/4W 1kΩ ±5%	1
RCR3052	R 1302	R, Carbon 1/4W 1kΩ ±5%	1
RCR3064	R 1303	R, Carbon 1/4W 3.3kΩ ±5%	1
RCR3060	R 1304	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3068	R 1305	R, Carbon 1/4W 4.7kΩ ±5%	1
RCR3052	R 1306	R, Carbon 1/4W 1kΩ ±5%	1
RNT0194	RV 1001	VR, Metal EVN 38C A00 B15 100KB	1
RNT0194	RV 1002	VR, Metal EVN 38C A00 B15 100KB	1
RNT0194	RV 1003	VR, Metal EVN 38C A00 B15 100KB	1
CQA0122	C 1001	C, Plastic 50V 0.047μF +80% -20%	1
CES0035	C 1002	C, AL Elyc 50V 47μF ±20%	1
CQA0122	C 1003	C, Plastic 50V 0.047μF	1
CCD0246	C 1004	C, Ceramic 2kV 0.001μF	1
CCD0231	C 1005	C, Ceramic 2kV 0.0047μF	1
8470479AZ	C 1006	C, Ceramic 2kV 0.01μF	1
8470479AZ	C 1007	C, Ceramic 2kV 0.01μF	1
CCC0868	C 1008	C, Ceramic 500V 47pF	1
CCC0112	C 1009	C, AL Elyc 160V 1μF ±20%	1
CCD0246	C 1010	C, Ceramic 2kV 0.001μF	1
CCD0231	C 1011	C, Ceramic 2kV 0.0047μF	1
CCD0287	C 1012	C, Ceramic 500V 0.0047μF	1
CCD0287	C 1013	C, Ceramic 500V 0.0047μF	1
CCD0231	C 1014	C, Ceramic 2kV 0.0047μF	1
CES0423	C 1102	C, AL Elyc 250V 47μF ±20%	1
CES0424	C 1103	C, AL Elyc 160V 47μF ±20%	1
CES0137	C 1104	C, AL Elyc 25V 2200μF ±20%	1
CES0137	C 1105	C, AL Elyc 25V 2200μF ±20%	1
CES0032	C 1106	C, AL Elyc 25V 22μF ±20%	1
CES0036	C 1107	C, AL Elyc 25V 47μF ±20%	1
CES0032	C 1108	C, AL Elyc 25V 47μF ±20%	1
CES0032	C 1109	C, AL Elyc 25V 47μF ±20%	1
CES0101	C 1110	C, AL Elyc 16V 10μF ±20%	1
CCD0287	C 1111	C, Ceramic 500V 0.0047μF	1
CCR0128	C 1112	C, Ceramic 50V 0.1μF	1
CCR0128	C 1113	C, Ceramic 50V 0.1μF	1
CCR0128	C 1114	C, Ceramic 50V 0.1μF	1
CCR0128	C 1115	C, Ceramic 50V 0.1μF +80% -20%	1
3184280	MVT1001	Multiplier MR4A-5F	1
3184282	T 1001	XFMR HVT-3F	1
EFL0146	F 1001	Fuse FRP-0.2A	1
8470479DH	F 1003	Fuse FRP-2A	1
8470479DH	F 1004	Fuse FRP-2A	1
JBX0468	P 904	Connector 171825-3	1
JBR0019	P 920	Connector RT-01T-1.0B	1
JBX1907	P 1001	Connector 171825-2	1

Part Code	Symbol	Description	Q'ty
JBX1907	P 1002	Connector 171825-2	1
JBX0468	P 1003	Connector 171825-3	1
JBX0468	P 1004	Connector 171825-3	1
JBX0703	P 1101	Connector 1-171825-0	1
	P 1103	Not Used	
JBX0704	P 1104	Connector 171825-4	1
JBX0454	P 1105	Connector 171825-5	1
JBX0468	P 1106	Connector 171825-3	1
JBX1907	P 1303	Connector 171825-2	1
JBX0468	P 1304	Connector 171825-3	1
JBX1907	P 1305	Connector 171825-2	1
JBX0468	P 1306	Connector 171825-3	1
8480934B		P.C.B P-2320	1

SW 1 (P-2135)

Part Code	Symbol	Description	Q'ty
HDS0573	D 212	Diode SEL2210R	1
HDS0108	D 213	Diode 1S2075K	1
RCR3034	R 412	R, Carbon 1/4W 180Ω ±5%	1
RCR3032	R 492	R, Carbon 1/4W 150Ω ±5%	1
SSP0583	SW 204	SW, PB SPUJ40	1
	(SW 205)		
	(SW 206)		
	(SW 207)		
	(SW 208)		
	(SW 209)		
RND0001	RV 203	VR, Metal DN-E-0151 500Ω	1
	(SW 211)		
JBX1712	P 215	Connector 1-171826-0	1
JBX1710	P 216	Connector 171826-3	1
8394321-1	P 217	Connector 171826-4	1
BSB0010		Jumper ϕ0.5	R03
8480934C		P.C.B P-2135	1

SW 2 (P-2137)

Part Code	Symbol	Description	Q'ty
SSP0583	SW 201 (SW 202) (SW 203) (SW 210)	SW, PB SPUJ40	1
JBX1711	P 214	Connector 171826-6	1
BSB0010		Jumper Ø0.5	R03
8480934D		P.C.B P-2137	1

LAMP (P-2158)

Part Code	Symbol	Description	Q'ty
ELT0005	PL 1301	Lamp H-0906	1
ELT0005	PL 1302	Lamp H-0906	1
8470479DN		Socket, Lamp F204P	4
8480934E		P.C.B P-2158	1

SOCKET (P-2012)

Part Code	Symbol	Description	Q'ty
RCR3100	R 1018	R, Carbon 1/4W 100kΩ ±5%	1
8470479BR	R 1019	R, Metal 1/2W 5.1MΩ ±5%	1
RCR2094	R 1020	R, Carbon 1/4W 510kΩ ±5%	1
ELL0019	NE 1001	Lamp NE2	1
ELL0019	NE 1002	Lamp NE2	1
8390152		Socket 1339 (CRT)	1
8480934F		P.C.B P-2012	1

LED (P-2011)

Part Code	Symbol	Description	Q'ty
HDS0574	D 1302	Diode SEL 2310G	1
8480934G		P.C.B P-2011	

EXT SC (P-2263)

Part Code	Symbol	Description	Q'ty
HTC0148	TR 601	Transistor 2SC458C	1
HDS0108	D 601	Diode 1S2075K	1
HDS0108	D 602	Diode 1S2075K	1
8470479FR	D 603	Diode 1K34A	1
8370379FR	D 604	Diode 1K34A	1
RCR3076	R 601	R, Carbon 1/4W 10kΩ ±5%	1
RCR3080	R 602	R, Carbon 1/4W 15kΩ ±5%	1
RCR3060	R 603	R, Carbon 1/4W 2.2kΩ ±5%	1
RCR3025	R 604	R, Carbon 1/4W 75Ω ±5%	1
RCR3035	R 606	R, Carbon 1/4W 200Ω ±5%	1
RCR3020	R 607	R, Carbon 1/4W 47Ω ±5%	1
RCR3020	R 608	R, Carbon 1/4W 47Ω ±5%	1
CCR0144	C 601	C, Ceramic 50V 0.01μF ±20%	1
CCR0128	C 602	C, Ceramic 50V 0.1μF +80% -20%	1
CCR0128	C 603	C, Ceramic 50V 0.1μF +80% -20%	1
JBX0454	P 601	Connector 171825-5	1
8480934H		P. C. B. P-2263	1

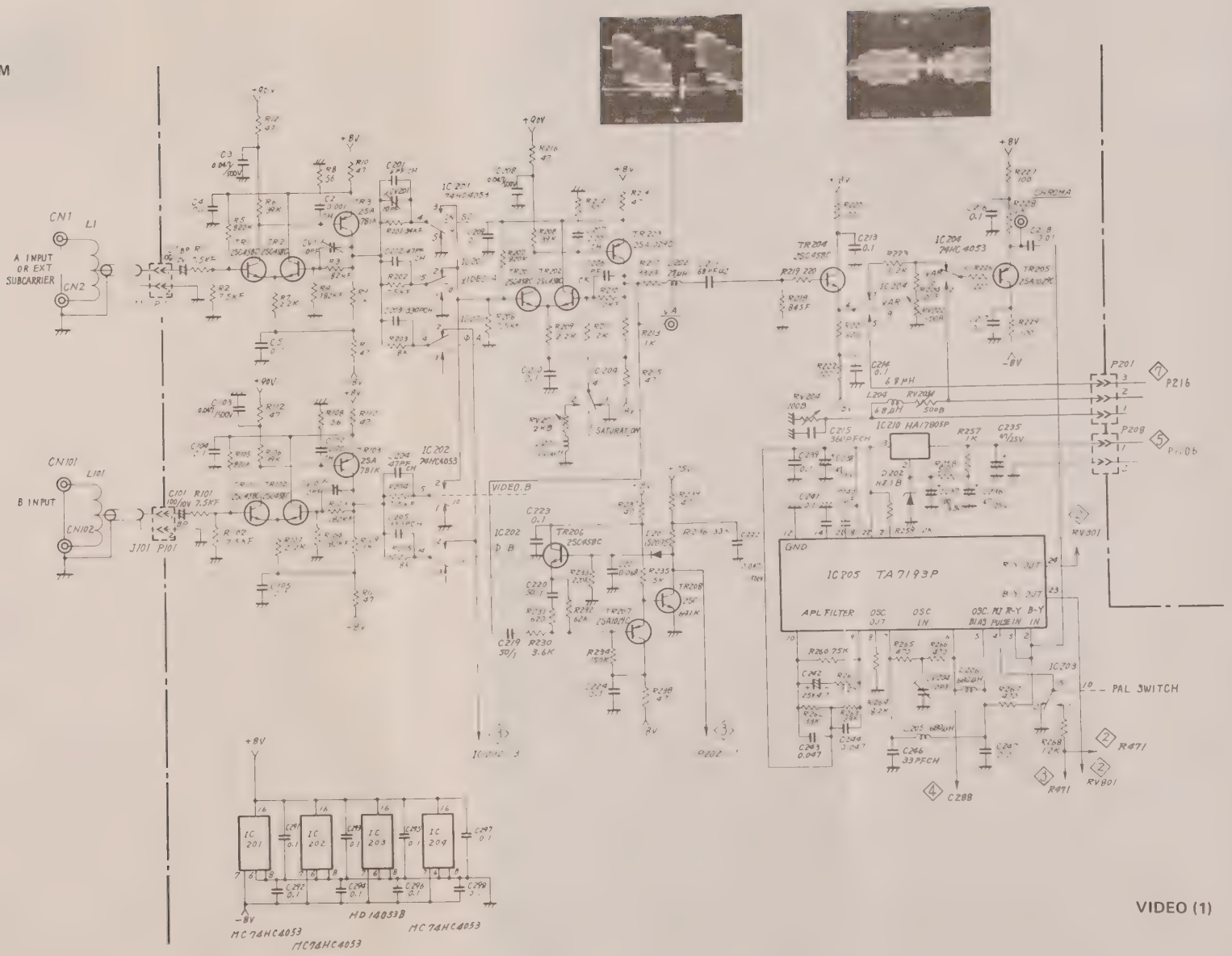
CHASSIS

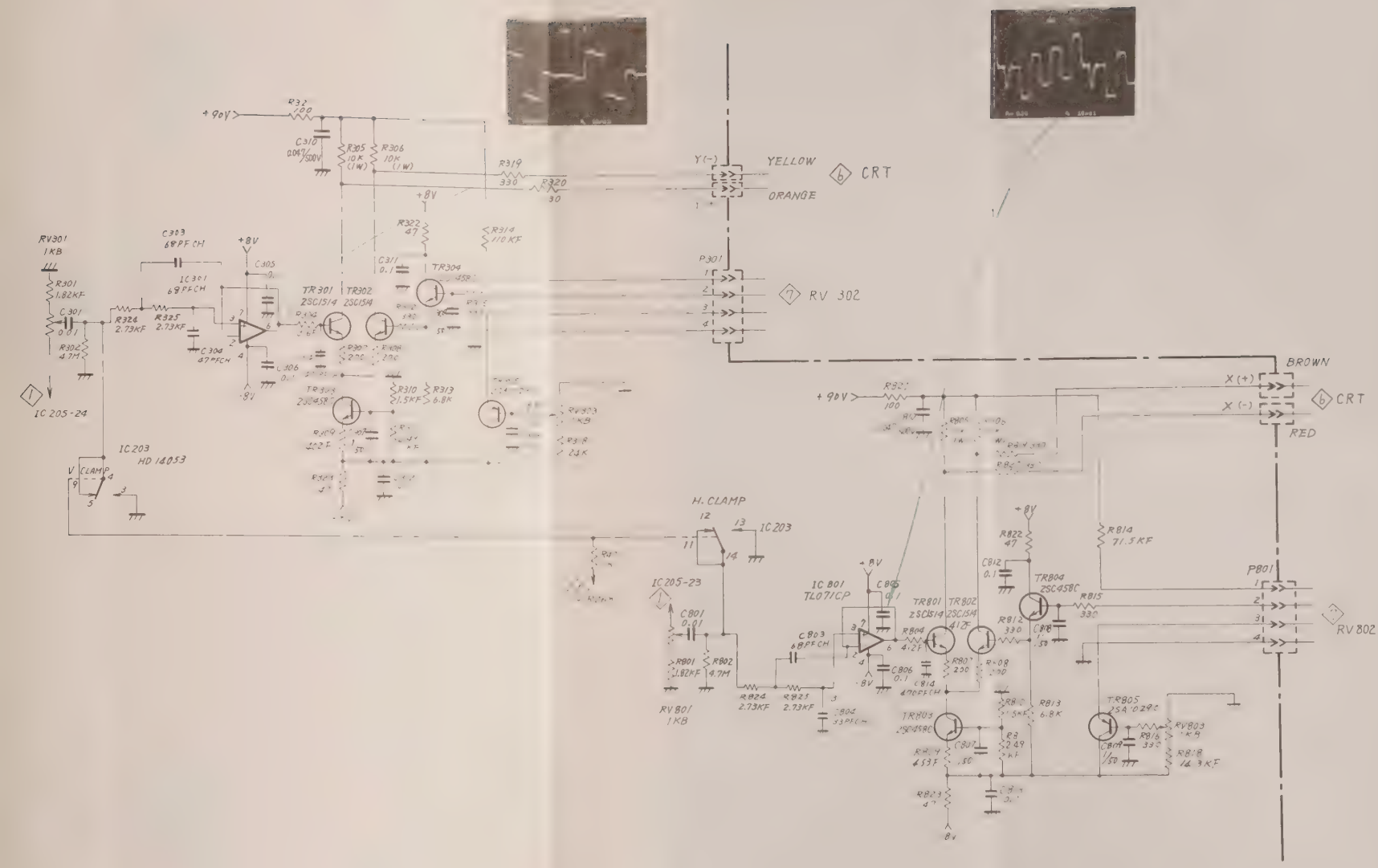
Part Code	Symbol	Description	Q'ty
HTD0155	R 1003	Transistor 2SD313E	1
HTD0155	TR 1304	Transistor 2SD313E	1
RDE0078	RV 302	VR, Carbon EVH-COAP20B52 500B	1
RDE0078	RV 802	VR, Carbon EVH-COAP20B52 500B	1
RDE0076	RV 901	VR, Carbon EVH-COAP20B14 10kB	1

Part Code	Symbol	Description	Q'ty
RNE0059	RV 1004	VR, Metal EVN-HDGK20B26 2MB	1
8470479BY	RV 1302 (SW 1101)	VR, Carbon EVC-BLMP20B14 10kB	1
TTD0047	T 1101	Transformer DN-Y-0372	1
8470479FT	F 1101	Fuse S506 0.8A 250V	1
DPX0086	V 1	CRT 150CNB31T-VN	1
8470479EK	L 1	Coil DN-E-0187	1
8470479EK	L 101	Coil DN-E-0187	1
EZZ0114		Goniometer DN-E-0137	1
JHB0088	CN 1	Connector BNC-071	1
JHB0088	CN 2	Connector BNC-071	1
JHB0088	CN 101	Connector BNC-071	1
JHB0088	CN 102	Connector BNC-071	1
JJG0003	CN 1101 (J 1105)	Connector 42R34	1
JBX2043	J 1	Connector 172142-2	1
JBX2043	J 101	Connector 172142-2	1
JBX1993	J 201	Connector 172142-3	1
JBX1989	J 202	Connector 172142-6	1
JBX2043	J 204	Connector 172142-2	1
JBX1995	J 205	Connector 172142-4	1
JBX1994	J 206	Connector 1-172142-2	1
JBX1989	J 207	Connector 172142-6	1
JBX2043	J 208	Connector 172142-2	1
JBX1989	J 214	Connector 172142-6	1
JBX2053	J 215	Connector 1-172142-0	1
JBX1993	J 216	Connector 172142-3	1
JBX1995	J 217	Connector 172142-4	1
JBX1995	J 301	Connector 172142-4	1
JBX2204		Connector Y(-) 1P-SMF	1
JBX2204		Connector Y(+) 1P-SMF	1
8470479EH	J 601	Connector 172142-5	1
JBX1995	J 801	Connector 172142-4	1
JBX2204		Connector X(-) 1P-SMF	1
JBX2204		Connector X(+) 1P-SMF	1
JBX1993	J 904	Connector 172142-3	1
JBX2204	J 920	Connector 1P-SMF	1
JBX2043	J 1001	Connector 172142-2	1
JBX2043	J 1002	Connector 172142-2	1
JBX1993	J 1003	Connector 172142-3	1
JBX1993	J 1004	Connector 172142-3	1
JBX2053	J 1101	Connector 1-172142-0	1
JBX1995	J 1104	Connector 172142-4	1
8470479EH	J 1105	Connector 172142-5	1
JBX1993	J 1106	Connector 172142-3	1
JBX2043	J 1303	Connector 172142-2	1
JBX1993	J 1304	Connector 172142-3	1
JBX2043	J 1305	Connector 172142-2	1
JBX1993	J 1306	Connector 172142-3	1
JHB0088	CN 602	Connector BNC-071	1
JHB0088	CN 603	Connector BNC-071	1

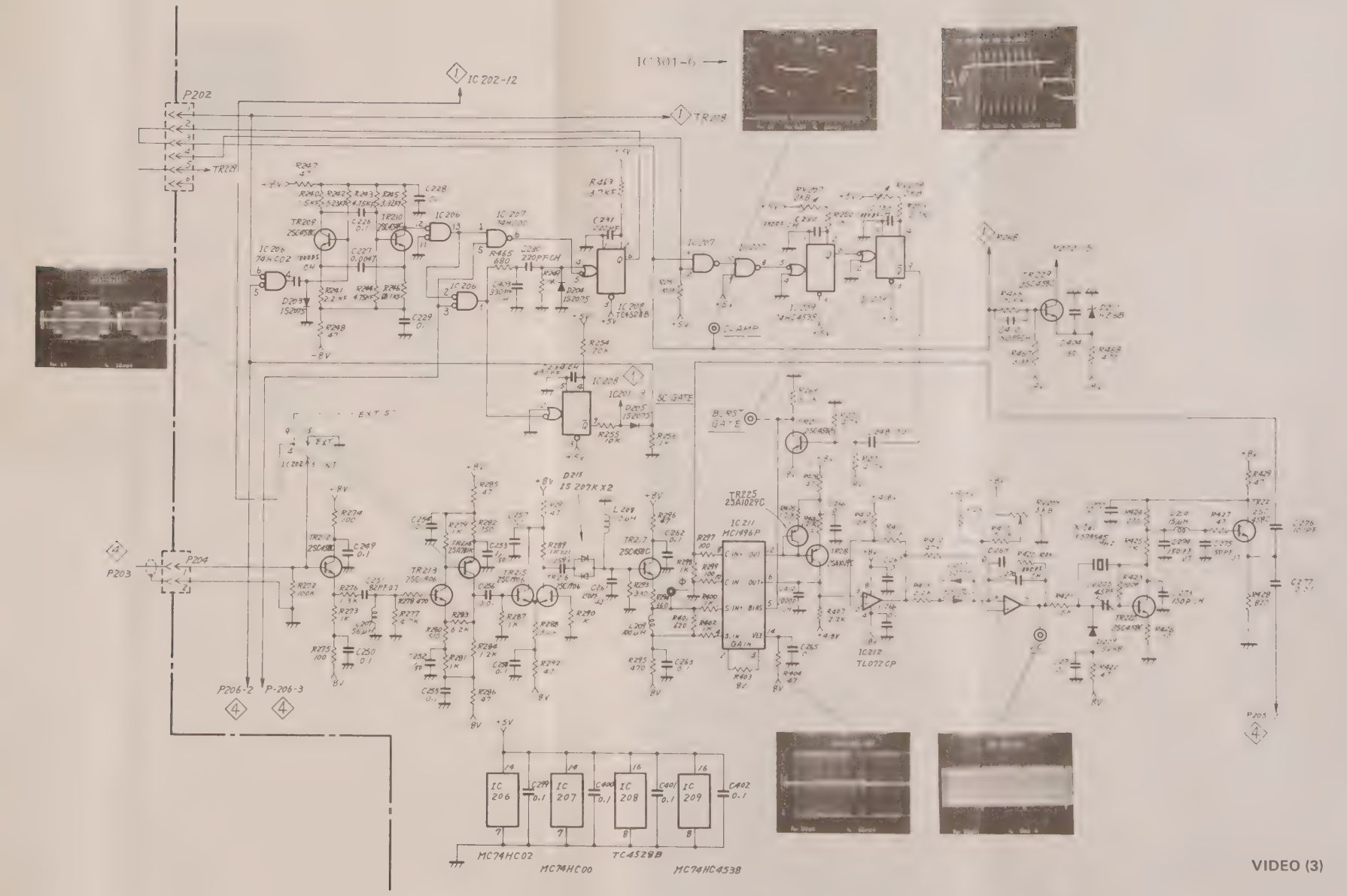
Part Code	Symbol	Description	Q'ty

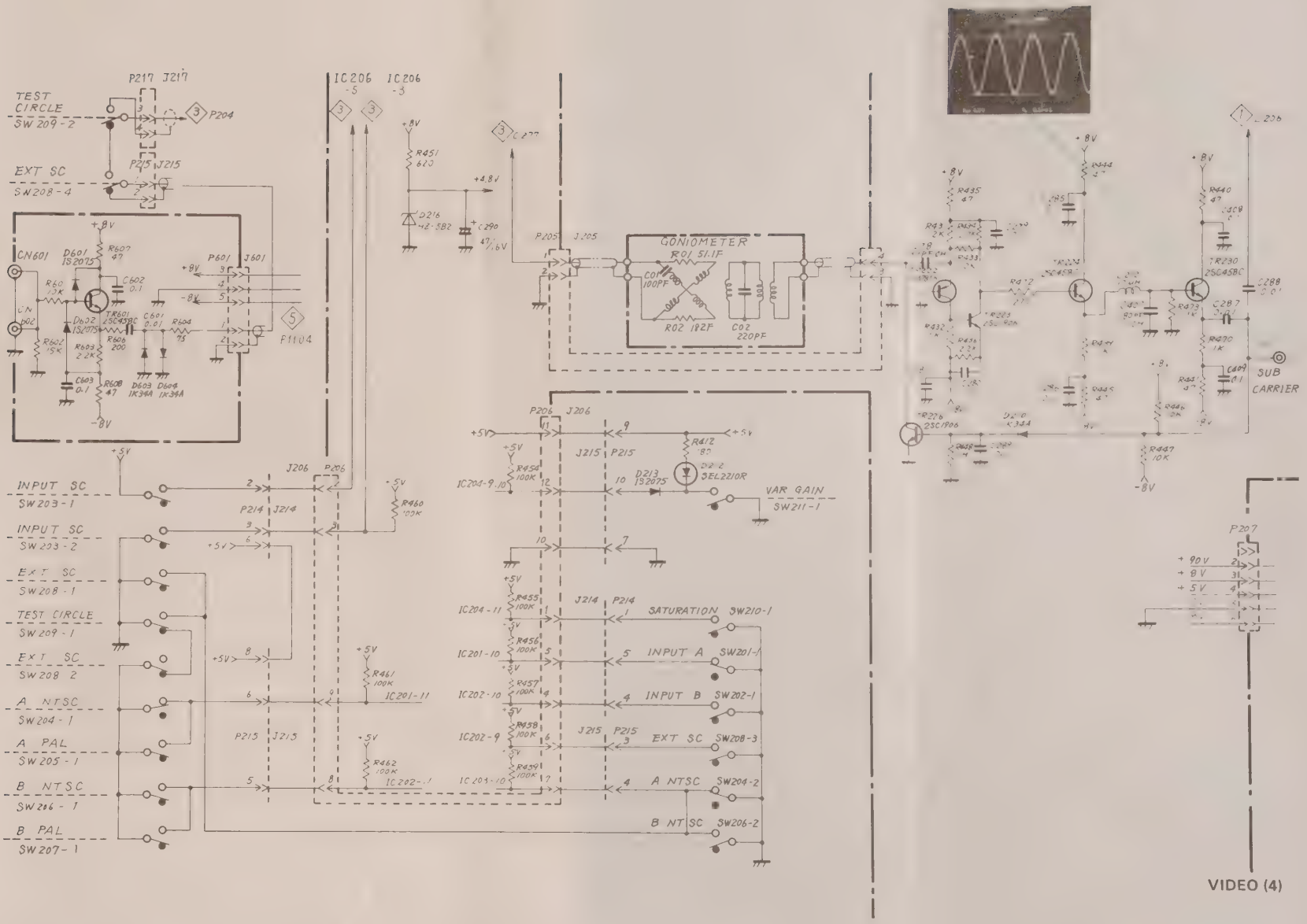
7. SCHEMATIC DIAGRAM

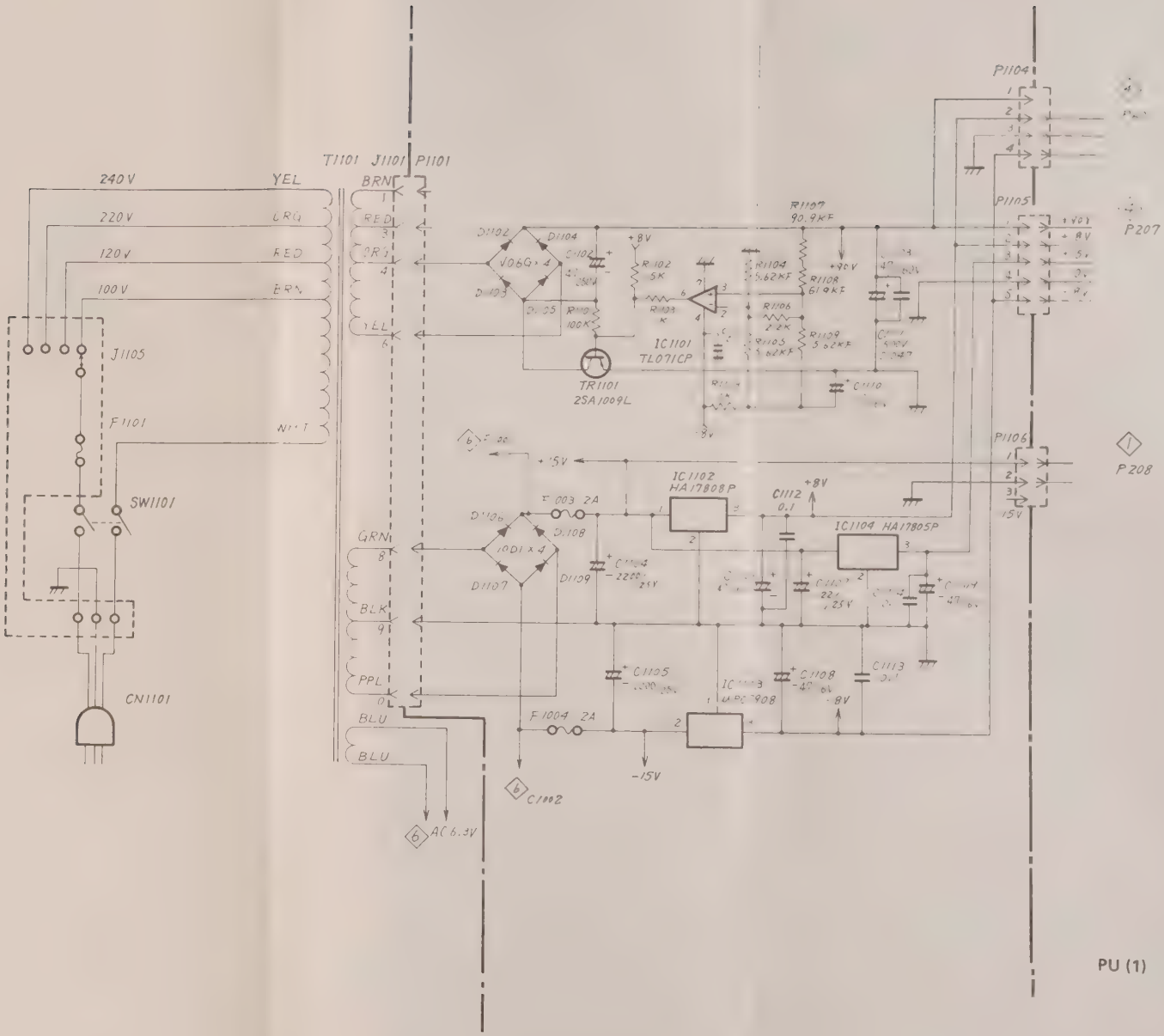



+90V
R32 100
C310 0.047/500V
R305 10K (1W)
R306 10K (1W)
R319 330
R320 30
+8V
Y(-)
YELLOW
ORANGE
CRT
RV301 1KB
R301 1.82KF
C303 68PFCH
C301 0.01
R324 2.73KF
R325 2.73KF
C304 47PFCH
C305
C306 0.01
R322 47
R314 110KF
C311 0.1
TR304
TR301 2SC1514
TR302 2SC1514
TR303 2SC458
R310 21.5KF
R313 6.8K
RV303 1KB
P301
RV 302
IC 205-24
IC 203 HD 14053
V CLAMP
H. CLAMP
IC 205-23
C801 0.01
R801 1.82KF
R802 4.7M
RV 801 1KB
R824 2.73KF
R825 2.73KF
IC 801 TL071CP
C805 0.1
C803 68PFCH
C806 0.1
C814 470PFCH
TR801 2SC1514
TR802 2SC1514
R804 4.12F
R805 200
R808 200
R810 1.5KF
R813 6.8K
TR803 2SC458C
R811 4.53F
C807 150
R8 2.49 KF
R823
TR805 2SA1029
RV803 1KB
R816 33
R818 14.3KF
C809 1/50
C812 0.1
TR804 2SC458C
R814 71.5KF
R822 47
R815 330
R812 330
C818 150
P801
RV 802
BROWN
X(+)
X(-)
CRT
RED

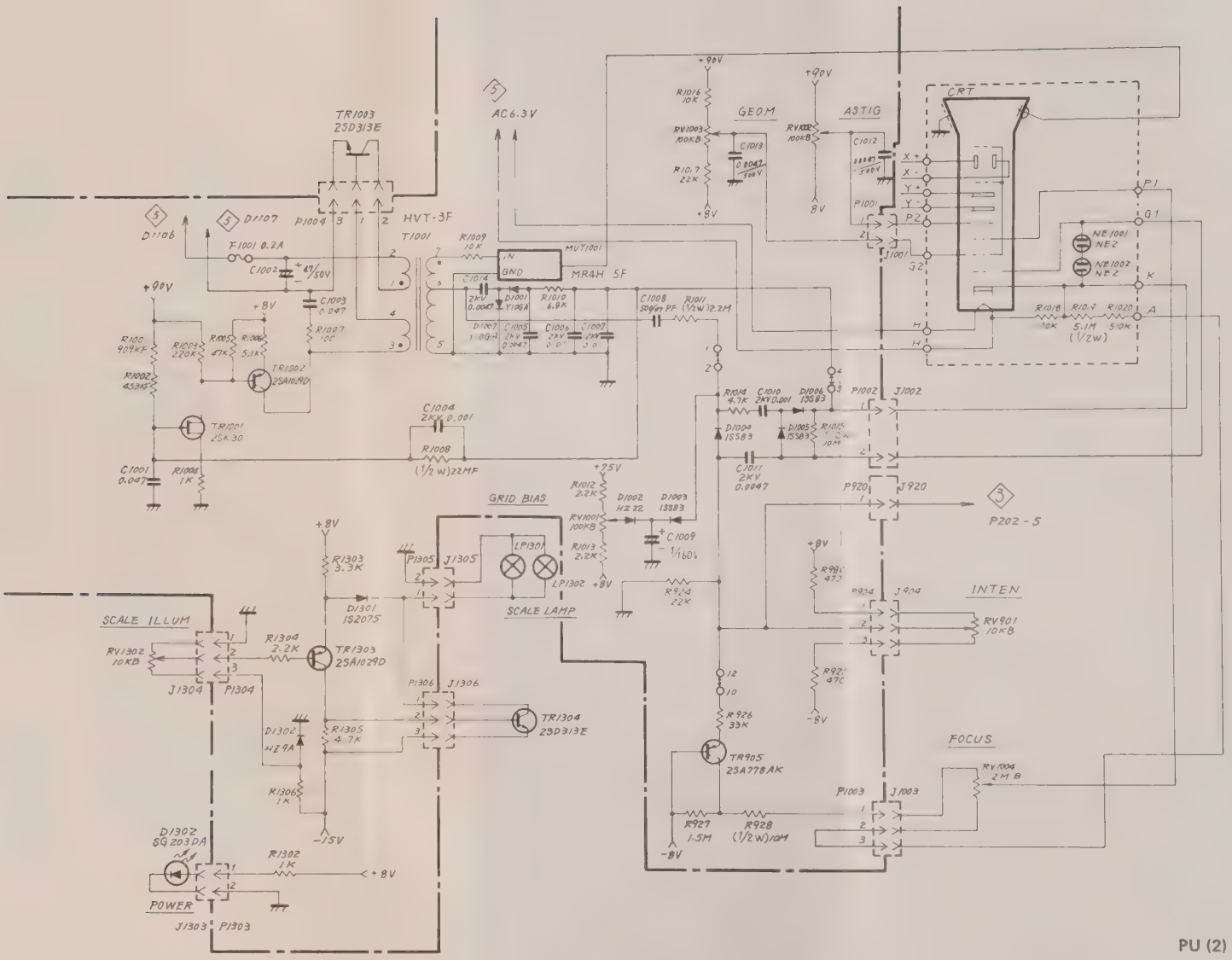
VIDEO (2)


IC 202-12
TR209
P202
TR219
IC 206
IC 207
IC 208
IC 201
SC GATE
BLANK GATE
P203
P204
P206-2
P-206-3
IC 211
MC1496P
TR225
2SA1029C
IC 212
TL072CP
IC 206
IC 207
IC 208
IC 209
MC74HC02
MC74HC00
TC4528B
MC74HC4538
VIDEO (3)

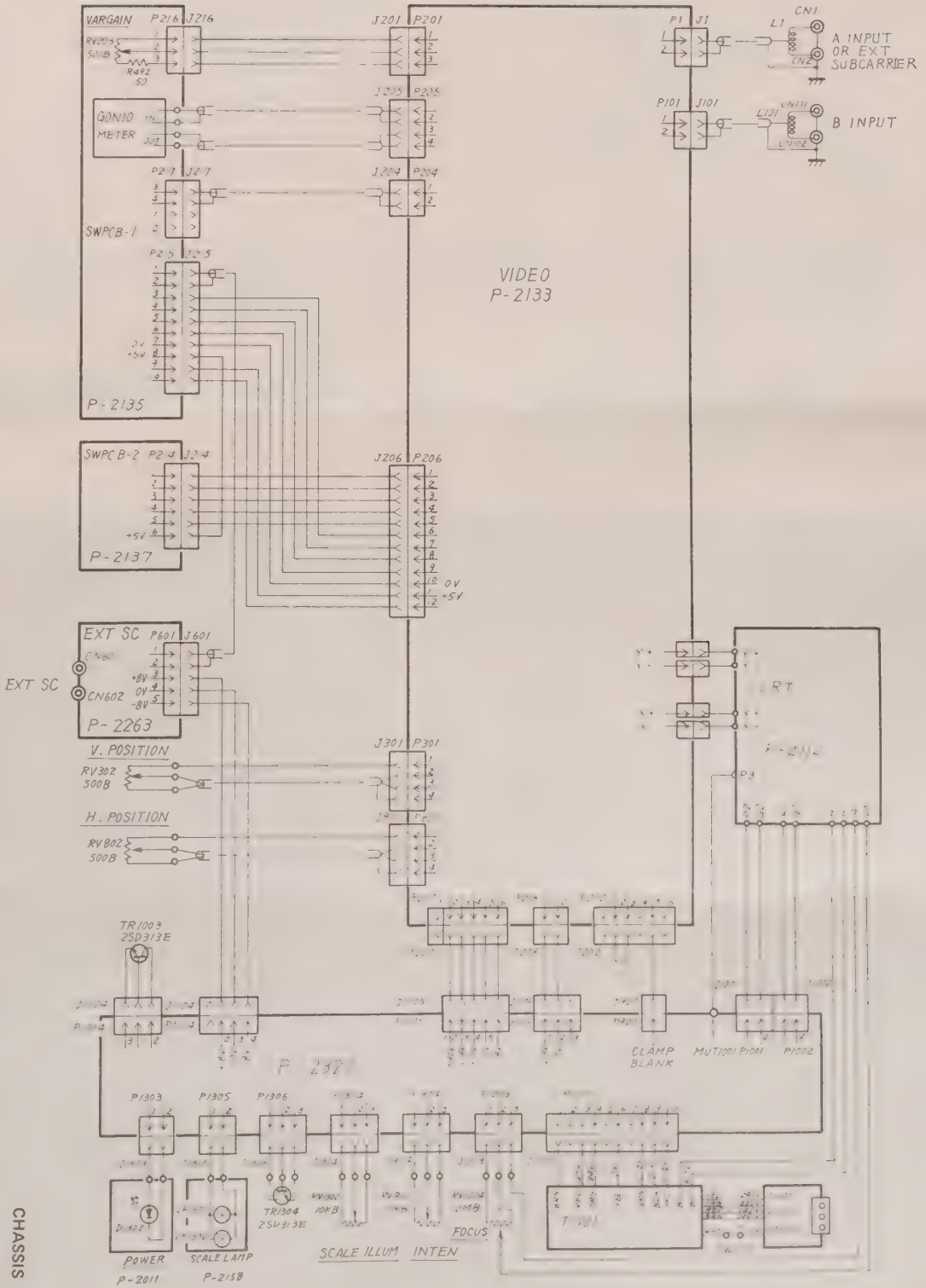

TEST CIRCLE SW 209-2
EXT SC SW208-4
P217 J217
P215 J215
P204
IC206 -5
IC206 -3
GONIOMETER
R01 51.1F
R02 182F
C01 100PF
C02 220PF
P205 J205
P206 J206
P601 J601
CN601
P1104
INPUT SC SW203-1
INPUT SC SW203-2
EXT SC SW208-1
TEST CIRCLE SW209-1
EXT SC SW208-2
A NTSC SW204-1
A PAL SW205-1
B NTSC SW206-1
B PAL SW207-1
P214 J214
SATURATION SW210-1
INPUT A SW201-1
INPUT B SW202-1
EXT SC SW208-3
A NTSC SW204-2
B NTSC SW206-2
VAR GAIN SW211-1
SUB CARRIER
P207
VIDEO (4)


T1101 J1101 P1101
240V
220V
120V
100V
YEL
ORG
RED
BRN
J1105
F1101
SW1101
CN1101
BRN
RED
ORG
YEL
GRN
BLK
PPL
BLU
BLU
AC 6.3V
D1102
D1104
D1103
D1105
V06G x 4
+8V
R1102 5K
R1103 K
R1104 5.62KF
R1107 90.9KF
R1108 61.9KF
R1106 2.2K
R1105 5.62KF
R1109 5.62KF
R1110 100K
IC1101 TL071CP
TR1101 2SA1009L
+90V
-8V
+15V
IC1102 HA17808P
F1003 2A
D1106
D1108
D1107
D1109
100D1 x 4
C1104 2200 25V
C1112 0.1
IC1104 HA17805P
C1114 22 25V
C1105
C1108 40
C1113 0.1
F1004 2A
-15V
C1002
P1104
P1105
P1106
P207
P208
15V

PU (1)


TR1003 2SD313E
AC 6.3V
HVT-3F
T1001
F1001 0.2A
C1002 47/50V
MUT1001
MR4H 5F
GND
+90V
+8V
+75V
-8V
-15V
GEOM
ASTIG
CRT
P1001
J1001
P1002
J1002
P920
J920
P202-5
GRID BIAS
SCALE LAMP
SCALE ILLUM
POWER
INTEN
FOCUS
TR1001 2SK30
TR1002 2SA1029D
TR1303 2SA1029D
TR1304 2SD313E
TR905 2SA778AK
D1001 Y106A
D1002 HZ 22
D1003 1S383
D1004 1S383
D1005 1S383
D1006 1S383
D1007 1S1694
D1008 1S1694
D1009 1S1694
D1010 1S1694
D1011 1S1694
D1012 1S1694
D1013 1S1694
D1014 1S1694
D1107
D1106
D1301 1S2075
D1302 HZ9A
D1303 SG203DA
LP1301
LP1302
J1304 P1304
J1305 P1305
J1306 P1306
J1303 P1303
J1003 P1003
J904 P904
NE1001 NE2
NE1002 NE2
RV1001 100KB
RV1002 100KB
RV1302 10KB
RV901 10KB
RV1004 2MB
R927 1.5M
R928 (1/2W)10M
R926 33K
R1303 3.3K
R1304 2.2K
R1305 4.7K
R1306 1K
R1302 1K
R1012 2.2K
R1013 2.2K
R924 22K
R1008 (1/2W)22MF
C1004 2KV 0.001
C1009 1/160V
C1011 2KV 0.0047
C1012 0.0047 500V
C1013 0.0047 500V
C1008 500μμF
R1011 (1/2W)2.2M
R1014 4.7K
C1010 2KV 0.001
R1015 10M
R1018 10K
R1019 5.1M (1/2W)
R1020 510K

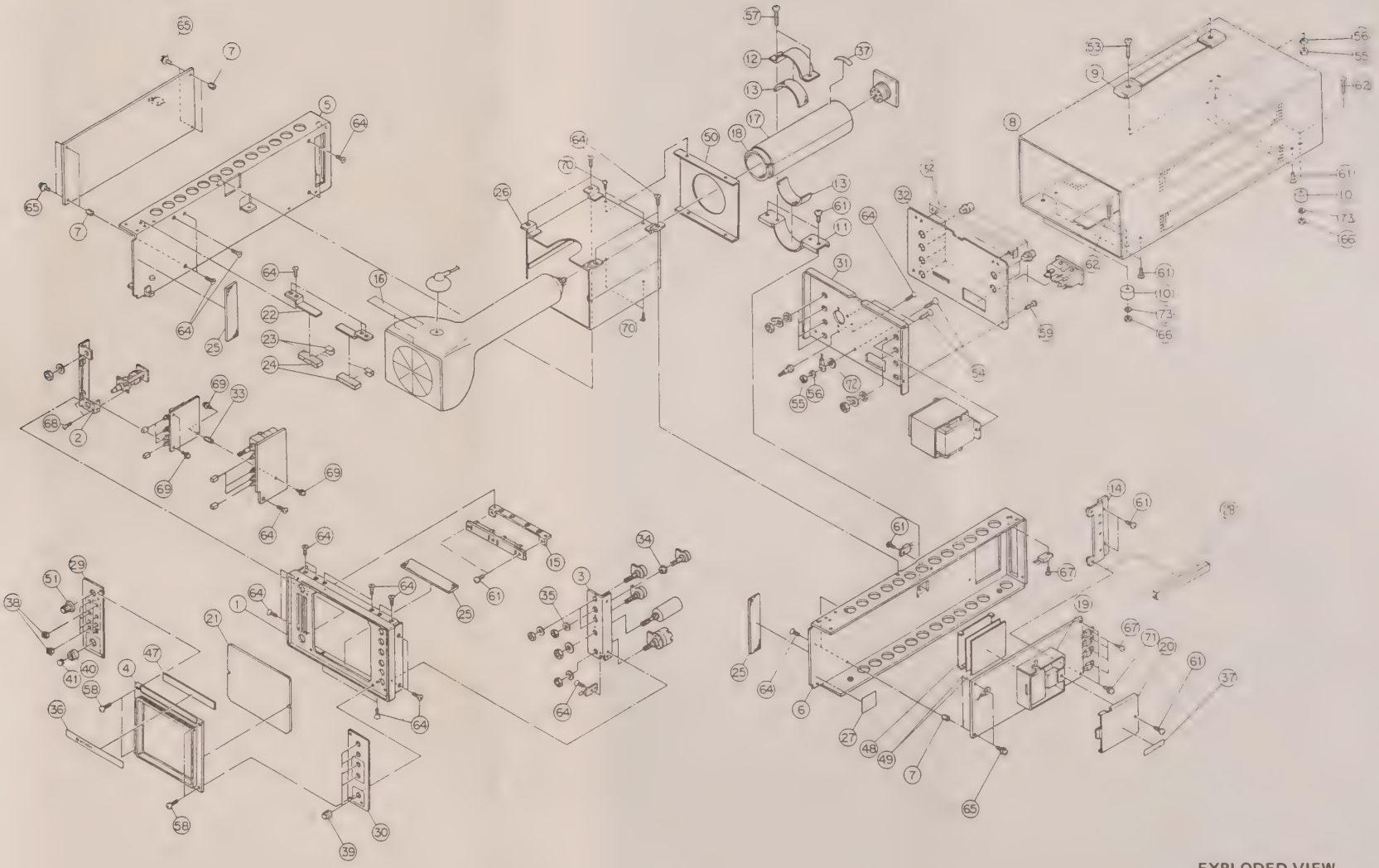
PU (2)


VARGAIN
P216
J216
J201
P201
RV203
500B
R492
5Ω
GONIO
METER
J235
P235
P207
J207
J204
P204
SWPCB-1
P-2135
VIDEO
P-2133
P1
J1
CN1
L1
A INPUT
OR EXT
SUBCARRIER
CN2
P101
J101
CN101
L101
L102
B INPUT
SWPCB-2
P204
J204
J206
P206
P-2137
+5V
0V
EXT SC
P601
J601
CN601
CN602
+8V
0V
-8V
P-2263
V. POSITION
RV302
500B
H. POSITION
RV802
500B
J301
P301
RT
TR1003
2SD313E
CLAMP
BLANK
MUTI001
P1001
P1002
P1303
P1305
P1306
TR1304
2SV313E
RV1304
10KB
FOCUS
SCALE ILLUM
INTEN
POWER
P-2011
SCALE LAMP
P-2158

MECHANICAL PARTS LIST AND EXPLODED VIEW

rt Code	Symbol	Description	Q'ty	Remarks
19564A	1	Chassis Front	1	
59132A	2	Bracket	1	
59133A	3	Bracket	1	
00207A	4	Bezel	1	
19565A	5	Chassis L	1	
19566A	6	Chassis R	1	
53405A	7	Spacer	3	
19567A	8	Cover	1	
56334A	9	Handle	1	
56335E	10	Foot	4	
59134A	11	CRT Band	1	
63396A	12	CRT Band	1	
63397A	13	Rubber	2	
63398A	14	Heat Sink	1	
69135A	15	Lamp Holder	1	
80110A	16	Lamp Cover	1	
63399A	17	Shield Plate	1	
63400A	18	Rubber	1	
63401A	19	Shield Case, HV	1	
63402A	20	Shield Cover, HV	1	
66355A	21	Filter	1	
69137A	22	CRT Bracket	2	
69138A	23	Earth Plate	2	
69139A	24	Rubber	2	
69140A	25	Rubber	3	
69141A	26	Shield Case	1	
69142A	27	Insulator	1	
78157A	28	Edgging	2	
63428A	29	Panel Front, L	1	
63426A	30	Panel Front, R	1	
07525A	31	Chassis, Rear	1	
19218A	32	Panel, Rear	1	
62306A	33	Spacer	1	
63403A	34	Insulator	1	
63404A	35	Insulator	1	
66352B	36	Name Plate	1	
58852A	37	Label	3	
46145A	38	Knob Guide	8	
49324B	39	Knob-S18B	5	
22681A	40	Knob	1	
63337A	41	Cap	1	
69144A	47	Insulator	1	
69145A	48	Shield Plate	1	
69146A	49	Insulator	2	
69143A	50	Shield Cover	1	
49324A	51	Knob-S18B	1	
78156A	52	Adapter	1	
CA7416	53	Screw Flat 4 x 6	2	
CA7410	54	Screw Flat 4 x 10	3	
CA1707	55	Nut 4	3	
CA1881	56	Washer, Spring 4	3	
CA6312	57	Screw 3 x 12	2	
66336A	58	Screw 3 x 8	4	
CA1818	59	Screw 3 x 8	4	
CA6306	61	Screw 3 x 6	10	
CA7310	62	Screw Flat 3 x 10	4	
CA0032	64	Screw Flat 3 x 5	26	
CA0689	65	Screw Sems 3 x 6	3	
CA1706	66	Nut 3	4	
CA6006	67	Screw 2.6 x 6	5	
CA7006	68	Screw Flat 2.6 x 6	2	
45937G	69	Screw Sems 2.6 x 5	4	

Part Code	Symbol	Description	Q'ty	Remarks
XCA6205	70	Screw Sems 2 x 5	4	
XCA0661	71	Screw Sems 3 x 8	2	
XCA0008	72	Toothed Lock Washer	1	
XCA1879	73	Washer Spring 3	4	



EXPLODED VIEW

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Printed in Japan 87032HT1401 ①
FN6.5839 MCA1230